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TOXICOLOGY.

The profession could do with more such papers as that upon castor seed poisoning which Prof. Lander has just given to the Central Society. In itself, the paper adds a little to our knowledge of one poison. More than that, it may induce practitioners to take an increased interest in toxicology. Some are perhaps disposed to neglect it, but there are not many subjects which better deserve attention from clinicians.

Prof. Lander said "Although recorded cases in the veterinary literature are very few, cases of castor seed poisoning may, and do, occur from time to time." The words might be applied with equal truth to a great many other vegetable poisons, and some mineral ones. We all know the diagnostic difficulties which so frequently attend cases of poisoning in practice—difficulties chiefly arising from the indistinctive character of the symptoms. In most cases the symptoms, however acute they may be, do not conclusively indicate poisoning at all, and usually they do not even suggest the exact poison concerned. Unless there are some circumstances in the case which arouse and support suspicion, it is quite possible for either accidental or malicious poisoning to occur unrecognised; and it is probable that both do so occur more frequently than we suppose.

Considering these difficulties, and the great variety of substances that may be toxic to animals, it is clear that no clinician can hope to ever attain more than a comparatively fragmentary and imperfect knowledge of toxicology for guidance in his practice.

The subject will always include some of the most difficult cases met with in our everyday work, and therefore a toxicological paper by an expert cannot fail to be helpful. For obvious reasons, such papers seldom excite brisk discussion, but that does not detract from their special value.

THE SUPPLY OF VETERINARY PRACTITIONERS.

There are now only 3408 members on our Register. How many of them are engaged in independent private practice in this kingdom? Probably no one could answer the question exactly, but a little thought suggests that the number must be surprisingly small. Some hundreds are abroad. Many at home are in the public services, or retained by various bodies; some are assitants; and some not in practice at all. A careful analysis of the Register, if it could be made, might indicate that the national supply of private practitioners is already beginning to fall short of the demand.

LUNG PUNCTURE IN PULMONARY TUBERCULOSIS AN AID TO DIAGNOSIS.

The more methods the clinician can bring to his assistance, speaking generally, the better is he in a position to eliminate the risk of error, the result being a more accurate diagnosis.

In pulmonary tuberculosis to obtain a positive diagnosis the tubercle bacilli must be identified. This, as we all know, in some cases is not an easy matter owing to the fact that the *materies morbi* is not always obtainable through the usual channels, and in addition, when it is obtained, it runs the risk of becoming contaminated with other alien acid-fast bacteria which simulate in appearance Koch's bacillus, thereby tending to lead to errors in diagnosis. Realising these difficulties in dealing with non-expectorating animals it occurred to me that it might be expedient to aspirate the *materies morbi* from the lung directly through the chest wall. In this way an excellent method is adopted to detain the germ-laden material which has had the risk of contamination, by acid-fast bacteria, reduced to a minimum. It is scarcely necessary, however, to point out that the same difficulty is here encountered which one meets with in collecting material from other organs, *i.e.* the bacilli may be so few in number as to escape the most diligent microscopical investigation, or they may be absent from that particular collection altogether.

Centrifugalising the material will facilitate the demonstration of the bacilli in the former instance, while in the latter *several* lung punctures may be carried out in the same subject at the same time.

Modus operandi. A careful physical examination (auscultation and percussion) should be made of the most prominently diseased area and located. The hair should be clipped over this region and the skin well scrubbed with strong tincture of iodine. At the point of entrance of the needle a drop of pure lysol is now applied. The animal is then caught by the nose and horns and held by an attendant. Five to ten cc. of sterile broth or water is taken up and the needle of the aspirator then plunged boldly into the lung parenchyma between the ribs, taking care the seat of puncture is as far removed from the posterior border of the rib as possible, the object being to evade injury of the intercostal artery and vein. The needle having been driven home the fluid is now steadily injected, and after the elapse of about a minute, aspirated. It is impossible to abstract all the fluid which has been injected, nor is this even necessary. The needle may have penetrated a small bronchi or pulmonary vessel, either of which are capable drainage channels. If it

enters a purulent infective cyst and the pus is fairly liquid, little or none of the infected fluid is here aspirated, the aspirate being almost entirely composed of the morbid material.

If a pulmonary blood vessel has been struck, the collection may be made up wholly of blood which will offer, as a rule, in itself a small chance of contributing to an accurate diagnosis. This should be discarded, and another area explored. In other cases the aspirate medium may present a sero-sanguinous appearance, while held in suspension, is often found lung *debris*. In some instances the lung tissues appear to block the point of the needle, thwarting all aspiratory efforts. Simple rotation of the needle will sometimes overcome this difficulty; should this fail, however, I do not hesitate to move the needle laterally with the view of breaking down part of the lung structure, and re-aspirate. The material thus collected should then be centrifugalised in fine tapering tubes, and stained by carbol fuchsin, etc., in the usual way.

Case I. — A shorthorn cow suffering from catarrhal pneumonia, had three punctures, two in the left and one in the right lung, and the three resultant fluids mixed, centrifugalised and examined. Tubercle bacilli were found, the field showing three small collections and two distinct isolated bacilli.

Case II.—Shorthorn cow, recently calved, showing pneumonic symptoms. An area of dullness in the lower third of the right lung was detected, and a puncture was made between the 8th and 9th ribs and about 10 c.c. of thick pus aspirated. From this I was able to demonstrate a fair number of tubercle bacilli.

Case III.—Devon steer, two years old, in good condition but suffering from a more or less persistent cough and emphysematous respiration. An area of dullness was detected on the right lung, and aspiration produced a sanguino-purulent material. From this no tubercle bacilli were detected. Seven days later lung puncture was again performed, 5 c.c. were again aspirated two inches from the seat of the original puncture, while the left lung, showing a distinct rhoncus, was punctured and material collected. The two collections mixed, centrifugalised, and specimen stained, when examined revealed the presence of many tubercle bacilli.

Case IV.—Devon bull, with persistent cough and showing symptoms of broncho-pneumonia. Four punctures were made, two in each lung, but no morbid material could be aspirated. I presume the needle was too short, necessitating the procuring of a longer needle.

Some few days later a puncture on each lung was made, a semi-sanguinous fluid, somewhat chocolate looking in colour, with solid lung particles in suspension was aspirated, the fluid treated in the usual way, and although four smears were made the results were negative.

Case V.—Shorthorn cow, with a healthy history and in good condition, had calved four days previously, and was suffering from septic retention of the afterbirth. This was removed and the womb irrigated. Two days later pronounced pneumonic symptoms set in, probably due to septic infection. Two punctures in each lung were performed, with the result that a sanguinous brown-looking aspirate was obtained. From this three slides were examined with negative results. The animal died three days later. A post-mortem examination was made, the mediastinal and prepectoral glands were enormously enlarged and caseating. Scrapings from these revealed the tubercle bacilli in great abundance.

Conclusions.

I consider lung puncture is a most valuable aid to the diagnosis of pulmonary tuberculosis. It is a simple operation, and if carried out with antiseptic precautions, carries with it no risky sequelæ. I have, in addition to the cases above related, punctured the lungs of 12 equines and four bovines without any untoward results. In the case of one horse I have made nine punctures in 24 hours, all of these with the object of making vaccines.

In the five cases recorded here, each animal was in good condition, and in the first three cases where a positive diagnosis was made, there were pronounced pulmonary symptoms, none of which, however, the most experienced clinician could interpret as belonging specially to tuberculosis. I therefore consider lung puncture a valuable asset in obscure and non-suspicious cases, as well as in those showing pronounced tubercular symptoms and lesions. Needless to add, the aspirator must be sterilised before use. I prefer the injection of broth to that of water, the former has more consistency, and if a bacterial culture is required, an excellent nutrient medium is at once obtained. When the puncture is performed for diagnostic purposes only, sterile water does quite well. In both cases the fluid media should be raised to blood heat before injection.

From post-mortems I have made, I have noted that the entrance of the needle through the parietal and visceral pleura is indicated by a small scar, without any signs of a radiating pleurisy or even adhesions.

In the lungs I have seen at the seat of puncture sometimes a small blood clot, and a slight diffused discolouration of the tissues where the fluid media has penetrated, but beyond these there is nothing to show the lung tissue had been tampered with from without.

Wm. Scott, F.R.C.V.S., F.R.M.S.

Bridgwater.

ABSTRACTS FROM FOREIGN JOURNALS

Auto-Sero-Therapy in Veterinary Ophthalmology.

Pruneau, an Army veterinary surgeon, has published (*Recueil de Méd. Vét. d'Alfort*) an article upon this subject. He has seen auto-sero-therapy applied with very good results in cases of iritis and phlyctænular kerato-conjunctivitis in human ophthalmology, and therefore tried it in a case of specific ophthalmia in a horse, with most successful results.

The affected horse had violent conjunctivitis and photophobia. Lachrymation and hypotonus were present. The anterior chamber of the eye was opaque, and contained a fairly abundant collection of pus. The iris was opaque and dull, the ciliary region was sensitive, and the background of the eye could not be illuminated.

The horse received a first injection of 3 c.c. of serum. Twenty-four hours later there was no more lachrymation, the photophobia had almost wholly disappeared, and it was possible to illuminate the background of the eye. The pupil was still opaque and somewhat suffused, but the vessels proceeding from it were distinctly visible. The day after this (thus two days after the first dose) the horse received a second 3 c.c. of serum. Two days later he appeared cured, the pus in the anterior chamber of the eye was insignificant, the iris reacted to light and became dilated upon the injection of cocaine, so that it could be seen that no synechiæ were present.

The author has also applied this treatment in the case of another horse, suffering from pseudo-membraneous conjunctivitis. Complete recovery was obtained after two days.

The technique of the treatment is as follows;—

(1) Blood is withdrawn from a superficial vessel by means of a 20 c.c. hypodermic syringe, and is placed in a small wide-necked flask which has previously been subjected to dry sterilisation and hermetically sealed. The flask is then put into a dry place.

(2) Twelve hours after the withdrawal of the blood, it has coagulated and a quantity of serum sufficient for the treatment has exuded from the coagulum. It is better, however, to postpone treatment until twenty-four hours have elapsed. About 3 c.c. to 4 c.c. of the serum is then drawn up with an aseptic syringe, and the flask is closed very carefully. The flask can then be kept for another three or four days in a cool place.

(3) The affected eye is anæsthetised with five or six drops of a sterilised 4 per cent. solution of cocaine, and then washed with lukewarm sterilised physiological salt solution.

Whether the injection can be undertaken upon the standing animal or whether casting is necessary depends upon the degree of the horse's irritability and the perfection of the anæsthesia which has been attained.

(4) The upper eyelid is drawn well upwards: and the needle of the syringe is inserted under the conjunctiva of the eyeball, as far as possible from the edge of the cornea. About 3 c.c. of serum is then injected quite slowly. The resultant œdematous swelling is absorbed in twelve hours at the latest.

(5) The needle is withdrawn by a sudden movement, and the eye is washed with physiological salt solution. A second injection may quite well be given twenty-four hours after the first one.—*Berl. Tier. Woch.*

[The technique of this treatment should be well within the powers of most practitioners.—*Transl.*

Melanotic Sarcoma of a Digit with Cutaneous and Polyvisceral Metastases in a Dog.

Samson records (*Journal de Méd. Vét. et de Zoot.*) the case of a dog, five years old, which suddenly became very lame on the left fore limb, and at the same time showed a very distinct tumefaction of the extremity of the internal digit of the same limb. This was treated by baths, poultices, and by point-firing the swelling. The condition became worse, and four months later the animal was walking upon three legs. He suffered a good deal, and lost flesh daily. By that time the internal digit was very inflamed; and its extremity bore a swelling the size of a nut, which was *black*, malignant-looking, and pierced at its centre by a suppurating cavity.

Samson advised removal of the digit, and the operation was performed with complete success. The resultant wound healed in about a fortnight, and the bearing of the limb soon became normal. The dog, therefore, seemed to be cured.

Eight months later, he was again brought for examination. His intervening history had been good; but he now showed a tumour the size of the fist, uniformly hard and insensitive, situated at the base of the neck in front of the left shoulder, immediately at the entrance of the thorax. This was subjected to both internal and external treatment with iodine. About a fortnight later, the tumour had softened at one point. This was punctured, giving exit to a very abundant *black* pus. After the wound was cleansed, an examination of its interior showed a mammilated, filamentous, and *perfectly black* tumour.

Antiseptic treatment did not cause the abscess to close. The tumour augmented in volume, and others appeared at various points—upon the skin, in the region of the right flank, and in the muscles of the abdominal wall. Evidently the case was one of a melanotic tumour undergoing generalisation.

The dog now again lost condition, became dull, completely lost his appetite. Despite treatment by digitalis, iodides, and electrargol, he became worse, and it was finally decided to destroy him.

Post-mortem, it was found that the generalisation of the tumour was very advanced. All the organs were invaded, except the liver.

Histological examination of the metastatic growths, carried out by Prof. Ball, showed that the tumour was a sarcoma of mixed round and spindle celled type.—(*Annales de Méd. Vét.*)

Hæmorrhoids in a Horse.

Michael Schmidt, a Hungarian veterinary surgeon, records (*Allatorvosi Lapok*) the case of a nine-year-old brown gelding to which he was called. The history was that during defecation the horse groaned painfully, and at the same time a large swelling protruded from the rectum. The fæces were often covered with bloody mucus.

Upon manual exploration, the author discovered a jelly-like warm swelling the size of an apple on the dorsal wall of the rectum. After the administration of a clyster, the swelling was extruded from

the rectum with the ejected water; and it was seen that its surface was dark red, and showed various lacerations and granulations.

The swelling was ligatured with catgut, and laxatives and green food were ordered. On this treatment the horse made a complete recovery.

Such varicose swellings of the rectal wall are rarer in animals than in man, in consequence of the different position, which makes circulatory stasis less common in animals than in man.—(*Berliner Tier. Woch.*)

The Canine Piroplasmoses of Europe and Africa.

Laveran and Nattan-Larier report (*Annales de l'Institute Pasteur*) the results they have obtained in the comparative inoculation with virus of canine piroplasmoses of French and African origin. They conclude that the two diseases produced are identical; and no means of differentiating between them exists either in their symptoms, their lesions, or their evolution. It can only be said that the African virus is more active than the French one; because the African virus destroyed 17 dogs out of 19 inoculated with it, while only 15 dogs died out of 23 inoculated with the French virus. No difference exists in the morphology of the two piroplasms.

On the other hand, a study of the resistance which dogs which have been immunised against one parasite offer against the other, shows distinct differences. Seven dogs which had been immunised against the French piroplasm all became infected when inoculated with the African one, and six of them died. Two dogs which had been immunised against the African piroplasm were infected by the French one; but the infection was only slight, and both animals recovered.

The authors therefore conclude that *Piroplasma canis* of Europe and *P. canis* of Africa, are, if not two distinct species, at least two clearly distinct varieties.—(*Annales de Méd. Vét.*)

W. R. C.

YORKSHIRE VETERINARY MEDICAL SOCIETY.

[National V.M.A.—Northern Branch].

The annual meeting was held at the Hotel Metropole, Leeds, on Friday, the 30th January, at 4 p.m. Mr. McKinna, of Huddersfield, took the chair in the unavoidable absence through illness of Mr. J. Abson, the President, and the following members were present:—Messrs. S. Wharam, A. W. Mason, H. G. Bowes, and A. McCarmick, Leeds; Geo. Whitehead, Batley; P. Deighton, Selby; H. M Holland, Keighley; H. Pollard, Wakefield; Percy Abson, Doncaster; J. A. Hodgman, Barnsley; W. Edmondson, Harrogate; C. Pitts, Bradford; F. W. Pawlett, York; J. W. Lazenby, Tadcaster; and J. Clarkson, Hon. Sec., Garforth.

Visitors: Messrs. F. W. Garnett, Windermere; Percy Carter, Bradford; J. H. Carter, Burnley; and Prof. O. C. Bradley, Edinburgh.

The minutes of the previous meeting were taken as read.

On the proposition of the Chairman, seconded by Mr. Wharam, it was decided to send a telegram of sympathy to the absent President, sympathising with him in his relapse and expressing the meeting's sincere wishes for his speedy recovery.

The Secretary stated that a communication had been received from the Sanitary Institute regarding the next Congress to be held at Blackpool in July, and asking whether the Society would join the Congress.

The Chairman pointed out that their own International Congress would shortly be held, and that of course would overshadow all other matters in the near future.

After some discussion the matter was dropped, and no motion was proposed.

The Secretary stated he had received a postcard from Mr. Pratt who had been very seriously ill for some six months past, to the effect that he was better. Mr. Pratt, continued the Secretary, was one of the original founders of the Society, he had presented them with a unique set of pathological specimens and horse-shoes, and was generally held in considerable esteem by the profession. He thought every one present would be very glad to hear of Mr. Pratt's improvement in health.

Mr. S. Wharam asked why the present meeting was not held in the usual room of the hotel where Mr. Pratt's specimens were exhibited. It was explained the reason was that it was thought that room was not large enough for the annual meeting.

Messrs. S. B. Vine, Settle; P. Thexton, Pontefract; and E. J. Nicholson, Bridlington, were elected as members of the Society on the proposition of the Chairman, seconded by Mr. H. G. Bowes, the latter stating that he had known Mr. Nicholson as a student and felt he would make an excellent member of the Society.

The Chairman referred to the recent loss the Society has sustained in its list of Honorary Associates through the death of Mr. Hunting, and submitted the names of Dr. Bradley of the Royal Dick College of Glasgow, and Mr. Garnett of Windermere, for enrolment on the Honorary Associates list. With reference to Dr. Bradley, he said that when they took into account his work on comparative anatomy and the work he had done for the profession as a whole, they must feel they were not only honouring him by asking him to allow his name to be enrolled on the list of Associates, but they were also honouring themselves by so doing. Mr. Garnett also was a distinguished member of the profession, and had done a large amount of work in the Council in that thorough manner that characterised everything he took in hand.

The Secretary said he wished to associate himself with the remarks of the Chairman. In Dr. Bradley and Mr. Garnett they had two men who were fully entitled to any honour that any society might wish to confer upon them. Mr. Garnett was, he thought he might say, *the* worker of the profession as regards scientific work, in which he had accomplished a large amount of original research; and everybody knew or should know of the time and labour he had expended in connection with the Council, and in particular with the Parliamentary Committee. At the time of Mr. Garnett's election to that Committee it had held no meeting for something like seven years, but Mr. Garnett had raised it from that position to be the most important Committee of the Council. Dr. Bradley had also done a great amount of work in connection with the amalgamation of the various societies into the National Society.

On being put from the chair the motion was carried unanimously.

Mr. Garnett briefly thanked the members for the honour conferred upon him, and assured them that any work he had done had been performed simply for the love he entertained for the profession itself.

Report of the Council.

The Secretary stated that at the last meeting the matter as to the day on which ordinary meetings should be held, after being fully discussed, was put to the vote, with the result that eleven members voted for Friday as the day for holding the meetings, seven for Thursday, and one for Monday. The question was afterwards referred to the Council for consideration, but that body came to the conclusion that it would be inadvisable to change the day, as, if any change were made, the effect might be that more members might find it difficult to attend than was the case at the present time. The recommendation of the Council therefore was that the pay should not be changed.

The Hunting Fund.

The Chairman introduced the question of the the Memorial Fund which was being raised in remembrance of the late Mr. Hunting, than whom no man, he said, since the profession was instituted had better deserved its gratitude. The Council had recommended that a sum of three guineas should be voted to this purpose, and he wished to know if the meeting endorsed that recommendation. [The sum of three guineas was voted to the fund].

Interesting Cases.

Mr. H. M. Holland, of Keighley, exhibited a preserved specimen of a large testicle which he had taken from the abdomen of a dog six months ago. When called in to attend the case he thought the dog—a bull dog of the Rodney Stone strain—was suffering from dropsy, and was informed by the owner that whenever the dog made water, he either just previously or just afterwards ejected a small amount of pus-like matter.

The dog was about 2½ years old, but had only had one testicle present in the scrotum during life, and this was a very small one, no bigger than an ordinary filbert nut He (Mr. Holland) endeavoured to get some fluid away, but was only able to get about a gill ; he then felt the presence of the body more distinctly in the abdomen. He thereupon advised the owner to have the animal destroyed, considering it a case of a malignant growth. The dog died, however, before the owner gave him permission to destroy it, and when a post-mortem was made the enlarged testicle which weighed two or three pounds was found in the abdomen. The specimen showed just one half of the testicle. The cysts were full of a gelatinous matter.

The specimen was handed round for inspection, and the Chairman characterised it as a most interesting and remarkable case.

Mr. P. Deighton, of Selby, gave an account of a valuable hunter he had attended for laryngitis whose temperature when he was called in was 106°. During his treatment of the animal, which lasted two or three weeks, there was the greatest difficulty in getting any medicine into the horse at all. As soon as his head was up he began to cough and a ball could not be given. After three weeks treatment, Mr. Deighton called in the services of Mr. Mason of Leeds, but when the latter went to see the horse it was improving, was out, and progressing very well. Mr. Mason suggested blistering the horse's larynx, with the idea of preventing his being a "roarer" after the illness. That was on the Wednesday ; on the following Sunday, however, the horse began with colic, and when Mr. Deighton went to see him he was in a very bad state, rolling about, with a temperature of 105°. After spending a long time with the animal endeavouring to relieve its pain, Mr. Deighton left him for about an hour, and when he returned he found what he characterised as the clearest case he had ever seen of purpura hæmorrhagica. There was a well marked line, and his legs were swollen tremendously. The following morning the animal died. On making a post-mortem examination he found all the organs were slightly congested ; the liver, which was a very small one, being so rotten that it could not be lifted up. Mr. Deighton remarked that the horse had been coaxed to take Molassine meal in its corn, etc.

Mr. Wharam asked whether it was suggested that Molassine meal had anything to do with the horse's illness or condition.

Mr. Deighton : When I saw the condition of the liver I thought that might have something to do with it.

Mr. Mason, in referring to the case, said he had rather wondered in the first instance why his friend Mr. Deighton had called in a second opinion, but when he went into the case he understood the peculiar position his friend was in. Here was a valuable hunter which would not eat at all, and yet when he (Mr. Mason) arrived he had a normal temperature and was practically in the pink of condition for a horse recovering from what he might term a low fever. He attributed the animal's collapse to the fact that he was kept in a box of a stable at the end of three stalls, and he thought that was a very unsatisfactory place to keep a horse in when off his food, and in a low state of fever. Had the horse been removed he thought he might have recovered eventually.

Mr. Wharam asked whether the horse had been hunted during the season or what he had done during the summer, and Mr. Deighton's reply was that he had not been hunted, and had been kept in the box in the summer, but had been shown at several agricultural shows, as his owner wanted to sell him. Besides Molassine meal, the animal had been given Henry's powders, but there were no more powders or Molassine meal anywhere in the place now.

Mr. McCarmick mentioned a case he had had, somewhat similar to Mr. Deighton's, of a horse which was suffering from catarrh, and there was a great amount of discharge for three weeks. When he went to see the animal he found a well-marked case of purpura hæmorrhagica, with a temperature of 105°. He got the horse into slings at once, gave two injections, and put him on a diet. At the present time the animal was very much better.

Mr. J. H. Carter said Mr. Holland's case had recalled to his mind a case several years ago, where a dog after urinating gave a copious discharge of pus. After being under his treatment for two or three weeks the animal had to be destroyed, and the post-mortem examination revealed an enormous cyst about the size of a large cocoanut.

Mr. Percy Carter mentioned a case of an enlarged testicle in a dog he had treated only a day or two before, which he said was very similar to Mr. Holland's case, though the testicle in his case was very much smaller, only weighing 11½ ounces. The dog was a beautiful collie about 14 years old, so he was informed, though to look at it did not appear to be more than seven or eight years old, and he found no second testicle. On examination he found tumefaction in the region of the scrotum entirely occupying one side of the groin, and thinking it was some form of tumour he advised the animal's destruction. On a post-mortem he found the large testicle, which he produced for the inspection of the members. Mr. Carter added that the dog's health had not been affected up to that time, and there was not much fluid when the testicle was taken away.

Mr. Garnett exhibited a bottle of fully developed worms, which he said had been collected from one expulsion at the coughing of a young heifer which he was treating along with others in August. He thought the case was very remarkable in view of the fact that it had always been his experience that worms began to come

about the end of September, or October and November. As this happened at the beginning of August the worms must have been taken up some time in May, and the development of them must have been very rapid indeed. They were all quite adult worms. About 14 of the heifers, which were about six months old, were affected, and one died.

The CHAIRMAN asked Mr. Garnett if he had treated the heifers by intratracheal injection, and the reply was that he had done so.

Mr. CLARKSON referred to a parturition case he had attended where the owner had complained to him that he had been very much troubled with abortion among his cattle, and had thought that the cow in question was aborting four months before, but apparently she had not. Mr. Clarkson's attention was called to the cleansing, which was a tremendous one, and on looking at it he found an imperfectly developed calf of probably four or five months; one calf was alive and the other arrested in his development. He thought this very unusual, because as a rule if one died the remainder came away, but in this instance the cow had carried the other calf completely through.

The CHAIRMAN expressed great satisfaction at the account of the interesting cases they had listened to, and hoped at future meetings this item would not be omitted from the agenda.

Mr. WHITEHEAD proposed a hearty vote of thanks to the gentlemen who had brought the interesting specimens and given the accounts they had listened to with so much pleasure. Mr. Wharam seconded the vote, which was carried unanimously.

Mr. WHARAM said he would like to see the number of instruments purchased by the Society increased. He thought if this were done the usefulness of the Society would be augmented, he proposed that the matter should be referred to the Council.

The SECRETARY pointed out that the same proposition had been made at the last quarterly meeting, and in due course it had come before the Council meeting, but in the absence of Mr. Wharam it had been deferred.

Mr. WHARAM then raised the point of the title of the Association. He thought the title of the Society should be "The Yorkshire Veterinary Society," and that the appellation "medical" should be dropped. He could not see that they gained anything by trenching on the medical profession, and he should like to hear an expression of opinion on the matter from the members there present.

The SECRETARY remarked that the same question had been discussed by the Society before, but he thought it might usefully be brought before the members again, and if Mr. Wharam would give due notice it would be placed on the agenda for consideration at a future meeting.

Mr. POLLARD proposed a vote of thanks to Mr. McKinna for so well fulfilling the office of Chairman at short notice. Mr. Clarkson seconded, and this was carried.

THE ANNUAL DINNER.

At the dinner which followed Mr. J. McKinna (Huddersfield) again presided in the absence of Mr. J. Abson, President. Among the guests were Mr. J. H. Carter, of Burnley, (President of the Royal College of Veterinary Surgeons), Dr. O. C. Bradley (Royal Dick Vet. Coll., Edinburgh; Dr. Arthur Dennison (Chairman of the Sanitary Committee of the Leeds Corporation), Dr. Angus (Assistant M.O.H. for Leeds), Mr. F. W. Garnett, Windermere, and Mr. Thomas, Leeds.

After the usual loyal toasts had been drunk with musical honours,

Dr. ANGUS proposed the toast of "The Veterinary Profession," and said he welcomed that opportunity of stating how very glad he was as representing the medical profession to meet the sister profession of veterinary surgeons. The veterinary profession, he thought, was more fortunate than the medical profession in the fact that they had the advantage of the one portal system. He regretted, however, that the importance of the veterinary profession to the country at large had not been sufficiently recognised by Government departments and those who held the power of opening the purse strings. He understood a movement was on foot to have the veterinary College incorporated, and he wished them every success in their endeavours in that direction. They in the medical profession would only have been too glad to have been in the position of an incorporated society during the perilous times the profession had passed through in recent years through the introduction of the National Insurance Act. When a society was incorporated it had a much stronger hold upon its individual members, and from that point of view alone it was a desirable thing. He had been informed of the forthcoming International Congress of Veterinary Medicine to be held in London this year, and he wished them every success in their meetings. Such congresses were of the greatest importance in disseminating abroad the advances of medicine and surgery in every country, and he was sure the delegates from other countries would depart with a very high opinion of the veterinary profession in Great Britain. As representing the public health aspect of the question, he should like to see every bond which the medical and veterinary professions had between them still strengthened, as the trend of legislation was more and more in the direction of dealing with matters which concerned them both. The Tuberculosis Order was one instance where, unless the medical and veterinary professions worked hand in hand, very little success would be likely to be attained, and the same thing would hold true, he presumed, when the Milk and Dairies Bill became law. He deplored the lack of endowment and philanthropic encouragement to veterinary science, and he thought philanthropists might profitably devote some part of their gifts to endowing veterinary research work. The question of swine fever was a matter that they had to deal with as a public health department, and they heard a great deal about the woes of pig keepers under the ban of a terrible Board of Agriculture. From what he had read in the daily papers of speeches made at the annual dinners of butchers, meat traders, and so on, it would appear that the Board of Agriculture's methods of treating disease were simply extraordinary. On inquiry from experts in the veterinary profession, however, it would seem that the serum treatment was not so very efficacious as the butchers would have them believe. It was in the direction of investigating the efficacy of serums and vaccines that the Development Fund was going to be devoted and grants made from it to the veterinary profession, and he, for one, was very glad to hear it. Finally, he should like to say that if the veterinary profession were as successful in their treatment of their patients as they were in the treatment of their guests the farmers would live to bless them.

Mr. J. H. CARTER, in responding to the toast, referred to the pleasure he felt at being again invited to be present at the annual meeting and dinner of the Yorkshire Veterinary Society. The Yorkshire Society was one of the most important in the country, and one of the oldest established, and he was proud to know that his father was one of its founders. When he himself obtained his diploma he joined the Society, and it was not until his removal to Lancashire that he had had to sever his membership with the Yorkshire Society. Although the position of the Royal College of Veterinary Surgeons was not encouraging from a financial point of view, he thought there was never a more encouraging future for the veterinary profession than

there was to-day. If the advent of motor cars had had the effect of driving the horse from the streets to some extent, yet on the other hand it provided considerably more accidents, which all meant grist to the mill. The Bill in connection with tuberculosis proposed by the Board of Agriculture in May last should also prove lucrative to the veterinary profession. With regard to the serum treatment of swine fever, the results had not been altogether reassuring on the Continent and America, but that same method was being adopted at the present time on certain farms in this country. With regard to other diseases, such as foot-and-mouth disease, pleuro-pneumonia, and rabies, no other country in the world was so free from those diseases as we in Great Britain were. He thought that spoke well for the veterinary profession of this country. He had recently read in the newspapers that Mr. Runciman had stated he had been considering a scheme which he hoped to put before the Development Commission for strengthening the veterinary profession, and added that it was absolutely necessary that further assistance should be given from the National Fund towards the education of veterinary surgeons. As to the future of the profession he thought that they might possibly be taken over by the powers that be and become paid servants of the State, like another profession he could name. God forbid that we should ever be looked upon as a down trodden profession, robbed of our independdence, and all this by the ruthless ravages of rapacious radicalism. The raising of the standard of stock was bound to have the effect of rendering the work of the veterinary surgeon more lucrative. With regard to the International Congress to take place in this country this year he hoped every member of the profession would liberally subscribe towards the fund that had been instituted, because gentlemen from every part of the civilised world would be there in the interests of veterinary seience and for the sake of the profession it was important that they should do all they could to lend support to the cause.

Dr. O. C. Bradley, in proposing "The Medical Profession," said that the veterinary profession looked to the medical profession for a certain amount of guidance, and followed their lead in more respects than one. They desired that they in the veterinary profession should occupy the same status as the medical profession. He would, however, like to ask: Why could not the medical profession have been happy with the preliminary examination which they had? If this had not been altered the veterinary profession would not have been faced with such a problem themselves. Could not some mode be devised by which they could still lay claim to have as good an entrance examination as the other profession. He could conceive that if they were to depart from the standard which the medical profession had set up, the finger of scorn might be pointed to them. That was a point of course upon which there might be more than one opinion, but he did think that they might find a way out of the difficulty not by raising the standard of the preliminary examination in the orthodox sense, but in altering the nature of the test. He thought every boy ought not to be compelled to pass in a classical language, and the educational value of the preliminary examination might be increased without doing what was generally meant by the expression "raising the standard." It was clear that in the future the two professions would become more and more united, and they would have to work together much more than they had in the past. Problems of public health must be attacked by both professions and not simply by one. He would ask where would extension of civilisation be if the two professions did not work together? Civilisation could not spread without animals; and incidentally it could not extend without men. Obviously the two absolute essentials were men and animals, or, if he might narrow it down, in other terms, the medical man and the veterinary surgeon.

Dr. Dennison, in replying to the toast, referred to the operations of the National Insurance Act. Although he did not like it he had get to tolerate it better. From the monetary point of view he thought the medical profession would be paid; and had thought so before the Act came into operation. But, he asked, was money all the professional man wanted? He took it that as members of honourable professions, so long as they had sufficient in the way of necessaries to make their lives happy and comfortable, money was by no means the first object in their life. They were not merchants, out to make a lot of money, but they were there in scientific interests, and their first care should be the helping forward of science to obtain further and more extended knowledge whereby to do do good to one's fellow men and fellow creatures. Looking round the city they would see that motor cars were being used by medical men at the present day out of all proportion to what had been in use before. That was because of the increased rush because of the increased number of patients to be seen, and he feared the result was that there was not that careful scientific interest taken in each case that there used to be before the Act came into operation. The natural result was that the medical man got slacker in his work, there was neither the interest nor the justification to be found in taking that deep interest in cases, because there was less time available; and, moreover, in many cases it was often found to be some minor ailment that could have been rectified by obtaining a shilling bottle of medicine from the chemist. Again, with all the statistics that the Chancellor of the Exchequer might be able to produce with the large staff of statistical clerks that must be employed to collect the material and compile it, he did not think when it was all there it was going to be of great scientific interest compared with the individual efforts of the members of the profession. He feared that the Act would bring lower class men into the profession who would grasp at the money paid through the agency of the State, at the cost of individual scientific interest and research. With regard to the preliminary examination standard he thought one of the greatest mistakes the medical profession had ever made was in reducing that standard. How it might be varied was a matter for consideration, but to lower the first obstacle in the way he thought was a mistake. There was one matter he would like to mention, and that was the National Conference on Tuberculosis which would be held in July. Why should they not have a veterinary section in these Conferences? They were dependent upon the gentlemen of the veterinary profession to keep the milk supply pure in the country and to look after the meat provision, and he was glad they were being allowed to make experimental research in local areas in regard to swine fever. He understood that Denmark at the present day were sending swine into Great Britain at a very rapidly increasing rate to make up for the decreased number of swine in this country during the last twelve months. It seemed to him barbarous that directly swine fever was found to be in a place an order should be given for the whole lot to be killed. He could not understand why that principle should be kept to so long without any attempt being made at isolating suspicious cases. What had all the killing of swine done in this country in the way of preventing swine fever?

Mr. Mason presented the toast of "Kindred Societies," and remarked that he very much regretted none of their Lancashire friends were present, as it was the first time in the history of the Society he remembered that being the case.

Mr. Garnett, in responding, touched upon the question of swine fever, and stated that he had been a

member for some years of the Departmental Committee dealing with the subject. He thought it was not possible for a person to deliver an opinion upon the serum treatment unless he had gone into the question and studied it thoroughly. The serum treatment alone gave protection against swine fever at the outside for a period of only 14 days. If serum treatment was taken in conjunction with an inoculation with active disease there was protection to the animal itself which might extend to its life, but it rendered that animal liable to be a "carrier" for the rest of its life to any other animals it might come in contact with. To propose that such a scheme as that should be applied broadcast in England with the removal of all restrictions was absolutely impossible. They were attacking the question of swine fever from a totally different point of view from the way it was being done on the Continent. In Denmark there was practically no swine fever. In Holland, where they had a great amount of it, they did not attempt to prevent it; it was not even a scheduled disease. In Hungary, which was the home of he serum treatment, they had applied the treatment, but with the most stringent regulations. In the United States, where the treatment had been extended to a far greater extent than any other country in the world, the great increase of the disease to-day was attributed to inoculation *plus* natural infection. He thought the remarks that were being made to-day in regard to the Board of Agriculture and their procedure with regard to swine fever were not doing justice to them—simply through a lack of knowledge of the facts.

Mr. CRAWFORD proposed the toast of "The Chairman," to which Mr. McKinna briefly responded.

During the evening the speeches were interspersed with items from an excellent musical programme given by Messrs. J. Holt, W. Hayle, G. R. Lister, and E. E. Johnson.

J. CLARKSON, Hon. Sec.

CENTRAL VETERINARY SOCIETY.

[NATIONAL V.M.A. SOUTHERN BRANCH.]

The usual monthly meeting was held at 10 Red Lion Square, W.C., on Thursday, March 5th, Prof. G. H. Wooldridge, President, in the chair. The following Fellows signed the attendance book: Messrs. W. R. Davis, F. J. Taylor, J. B. Buxton, R. Bennett, N. Almond, F. G. Samson, M. Cahill, J. Willett, R. Eaglesham, L. A. Auchterlonie, B. A. McGuire, G. Upton, W. S. Mulvey, Prof. E. B. Reynolds, H. D. Jones, E. L. Stroud, S. H. Slocock, W. L. Harrison, S. L. Slocock, J. W. McIntosh, W. D. Halfhead, T. S. Price, H. King, W. Perryman, A. E. Willett, F. W. Willett, and Hugh A. MacCormack, hon. sec.

Visitors: Prof. Lander, Messrs. J. T. Edwards, W. B. Howe, T. C. Toope, and R. Daubney.

On the motion of Mr. Bennett, seconded by Mr. Stroud, the minutes of the last meeting were taken as read and signed.

Correspondence. The HON. SEC. stated he had received a communication from Mr. Geo. H. Livesey explaining his inability to attend and present item 6 on the agenda, entitled "A Case of Rupture of the Uterus in the Bitch."

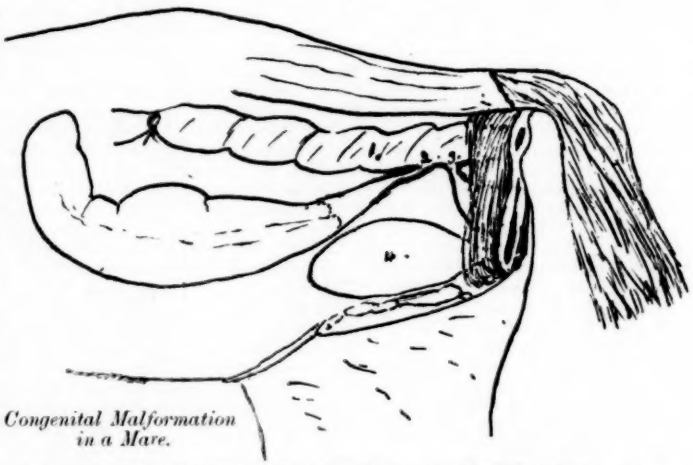
The HON. SEC. further stated that he had received certain publications from Major Holmes and Dr. Hartley, of the Department of Agriculture, India, relating to rinderpest.

It was decided that the thanks of the Society be tendered to Major Holmes and Dr. Hartley for the above publications.

Nomination. Mr. JOHN BROWNLESS, M.R.C.V.S., St. Mary Abbott's Terrace, Kensington, was nominated, and will come up for election at the next meeting.

SPECIMENS.

Mr. J. B. BUXTON submitted a specimen of strongyle from the fourth stomach of a goat which had set up a fatal gastritis. The case had previously been recorded in *The Veterinary Journal*.



Congenital Malformation in a Mare.

1. Rectum. 2. Vagina opening into rectum. 3. Opening and connection between rectum and vulva. 4. Bladder.

Mr. A. E. WILLETT submitted two cases. The first was that of a mare. Fæces were noticed in the vulva of the mare, and it was thought that a rupture might have occurred. Examination per rectum showed an orifice, with apparently a downward direction, this orifice coming out in the vulva. Feeling further, the speaker had found another orifice, into which he had been able to insert his finger, until he met what he took to be the os uteri. On examination per vulvam he had found no other orifice than that of the urethra. The speaker exhibited a rough sketch.

Mr. PERRYMAN regarded Mr. Willett's diagram with interest. There appeared to be two sinus wounds or false openings, and he would like to know whether the fæces worked down from the front opening towards the uterus; also, if there were any tendency to septic infection of the parts. Was the mare in a condition to pass fæces, both by the rectum and the vagina?

Mr. WILLETT: The animal was in perfect health. He had examined her from the posterior opening. The anterior opening to the vagina seemed to act as a valve, and did not show any tendency to allow the fæces to pass down.

Prof. REYNOLDS desired to ask Mr. Willett how long fæces had been noticed in the vulva, and what was the age of the mare. Did Mr. Willett think, after he had made his examination, that the case was one of congenital deformity, or the result of injury or accident?

In reply to Prof. Reynolds, Mr. Willett said he had no doubt that the deformity was congenital. The driver first noticed fæces in the vulva. The mare was six years old.

The second case was malformed fœtus of an Ayrshire cow. The cow had calved on the Friday morning. The cattleman applied a West's clamp on Sunday morning, and while struggling with this application another foot protruded. The speaker went to see the animal and found another fœtus, all four legs in the passage, the hind legs protruding. The next felt, after the hind legs, was an aborted foreleg, further back was a well formed foreleg. He resorted to embryotomy, removing all the legs, the head as a result coming quite easily into the vagina. When the fœtus was removed from the cow it was found that the hind legs were growing through the chest—as if in a sitting position—coming out in front of the head. The thorax was turned completely inside out and backwards, so that the false ribs were nearer to the neck. All the abdominal and thoracic organs were external to the body. The embryotomy precluded the possibility of getting a photograph.

The PRESIDENT remarked that, in his experience, the malformation of the genital passages recorded by Mr. Willett was unique, and very interesting. The fœtal monstrosity was not quite so rare; he had met with several such cases. Unfortunately it was seldom that the fœtuses could be delivered whole so that a good photograph could be obtained.

The speaker (Prof. Wooldridge) then exhibited a series of navicular bones, including one of a horse, seen in consultation with Mr. T. S. Price, injured by picking up a nail, which he had submitted at the previous meeting. At that meeting he had mentioned that in cases where, as a result of a picked-up nail, there was inflammation of the bursæ of the navicular with ulceration of the synovial lining of that bursæ, the best thing that could occur would be the adhesion of the tendon to the navicular bone, and that, the speaker had indicated, would have been likely to result in permanent lameness. He also said that he saw no advantage in treating cases where it was certain that the navicular bone had been penetrated.

The speaker had since come into possession of the navicular bone of a horse seen with Mr. West and Mr. Stewart which had picked up a nail as far back as October last, and had been under treatment ever since. The animal was still acutely lame, and when slaughtered, Prof. Wooldridge had found that almost the whole of the posterior face was firmly adherent to the flexor pedal tendon, and round the rim of it there was the exostosis which could be plainly seen in the specimen submitted. To his surprise, however, there was no indication of bone disease involving either the coronet or the pedal bone. For a few yards the horse had been able to walk fairly well, but when he struck his toe he would hop along on three legs with the damaged foot suspended high in the air. The post mortem justified the step taken. Above the pedal bone and behind the coronet bone was a cavity containing inflammatory blood-stained exudate. There was a small track on each side which would about admit a coarse knitting needle. On one side the track opened up to the heel; on the other side it was blind, and did not reach the skin.

The third specimen submitted, for which he was indebted to Mr. West and Mr. Southall, represented a case of injury either by a nail or glass—such as broken bottle—although no actual body causing the mischief was found. A suppurating condition of the foot was discovered in August last. The puncture of the foot on the side of the frog was opened, and pus liberated, the horse making an apparently uninterrupted recovery and being set to work in the middle of September. It was improbable that this was connected in any way with the later trouble. At the beginning of January last, however, it again became lame, rather suddenly. The owner, thinking the horse was nail-bound, sent it to the forge to have the shoe removed and replaced. Nothing was found wrong, and the horse went along better for two or three days, when it became acutely bad. The veterinary surgeon was called in, and found a punctured track between the frog and the bar; this was pared well down and pus liberated. The puncture had evidently been in existence for some days before attention had been called to it. The underrun horn was removed, and good drainage was promoted. In spite of that the horse kept acutely lame, and by the middle of February was not improving. On manipulating and pressing the back of the pastern a considerable quantity of pus spurted out—estimated at an ounce—but no relief followed. The destruction of the horse was then advised. The owner refused this for a fortnight, but a couple of days before slaughter there was a breaking out at the heel. The post-mortem showed that the navicular bone was ulcerated almost completely through, and had the horse attempted to work in that condition the navicular bone itself would have been smashed. The rim of the coronet bone was also affected, and there was erosion and slight exostosis of the pedal bone on the right (outer) wing. Further, there was ossification—with little grooves, probably due to pus—of both cartilages. It was interesting to compare the three navicular bones and work out, from the conditions existing, the advisability of recommending slaughter at an early date in such cases, rather than protract the case and slaughter the animal in the end. It required courage to advise the destruction of a horse worth £80, and it was small wonder that one procrastinated—hoping against hope.

Prof. WOOLDRIDGE also submitted a case of intussusception of the ileum through the ileo-cæcal valve into the large intestine of a Pekingese puppy, aged six months. The condition was most frequently associated with worms, but no worms could be found in this puppy. The bowel, except for the affected portion, was healthy. The large bowel had been split open, and the intussusception, resembling a finger lying on the face of the bowel, was exposed. At one end the ileum would be seen and the cæcum to one side.

Mr. W. R. DAVIS enquired whether in every case of a gathered nail wounding the frog and followed by escape of synovia the President would advise slaughter. [Prof. Wooldridge replied in the negative].

The PRESIDENT, with further reference to the intussusception case, said that the puppy had suddenly become frantic, and the owner had immediately destroyed him. There had therefore been no opportunity to diagnose or treat the case during life. Probably the trouble had been of very short duration.

Mr. J. W. MCINTOSH exhibited two small pieces of bone and two small pieces of charcoal removed from a strangulated scrotal hernia in a little dog, six months old, belonging to himself. The case was unusual. The dog was getting over distemper, and on Tuesday night last the speaker noticed a swelling of the scrotum which, on manipulation, proved hard though not large. He had also asked Prof. Wooldridge to look at the animal, which the Professor did. The case was puzzling, because the animal had been passing fæces freely all day (Thursday) and was quite lively. Prof. Wooldridge operated on the dog, which, however, died within 24 hours, on the Saturday. The swelling was painless.

The PRESIDENT supplemented the remarks of Mr. McIntosh. He had been misled in his diagnosis when he first saw the dog; except for the swelling of the scrotum, there was no indication of strangulated hernia. The dog passed fæces normally and in considerable quantity, was feeding fairly well. All that could be found was that some body in the scrotum crepitated when manipulated. Being a cold and painless swelling, he had been misled as to the condition. Mr. McIntosh had said that he was not certain that there had not been a swelling for some time previously. The dog had not

been examined at all minutely, as there did not seem cause. But for extreme thinness, following distemper, the dog appeared quite happy. It seemed attempting murder to operate there and then. It was therefore suggested that the dog should be got into better condition, and then explored. Next day the animal had a fistula, and, upon operating under A.C.E. anæsthesia it was found that there was an adhesion between the bowel and the base of the scrotum. The adhesions were broken down and the foreign bodies were removed and the bowel sutured. Even then the bowel was decidedly thickened, and could not be returned to the body cavity until the inguinal ring had been materially enlarged. At 2 o'clock the next day the dog collapsed after appearing very bright during the morning, and died in half-an-hour; it was a case of collapse as there had not been time for peritonitis to be established.

Mr. G. UPTON desired to refer to Mr. Willett's remarks, as he had known several cases, particularly with mares that had foaled too young. The slightest rent between the vagina and rectum would set up the trouble. A rent should never be made when a cow was in parturition; hæmorrhage led to a serious state of affairs. He remembered a case of a mare which had torn herself slightly, with the result that a fistula was formed which would not heal; fæces passed through.

POISONING BY CASTOR SEEDS (*RICINUS*).

Prof. G. D. LANDER, D.SC., Royal Vety. College.

The castor oil plant belongs to the *Euphorbiaciae*, and comprises many varieties of *Ricinus communis*, some of which are cultivated as ornamental hothouse plants. *R. communis* contains the toxine ricine which, according to Stillmark, is also contained in ten other varieties. Probably *Jatropha curcas*, purging nut, or Barbados seed also contains ricine, whilst *Croton tiglium*, belonging to the same order, contains the toxine crotine. *Abrus precatorius*, the crab's eye or jequirity, containing abrine, is a leguminous plant.

There is a great variation in the size and appearance of varieties of castor seed. At the present moment the seeds purchasable in the London market are of a small variety of the common and well-known drab and mottled seed. I have lately used seeds of this kind obtained through four district agencies. They average 135 seeds to the ounce, whilst specimens of *Ricinus sanguineus* and *Ricinus Zanzibariensis*, with which we have also experimented, averaged 66 and 39 seeds respectively to the ounce.

The relative proportion of husk to seed is important, and is for the specimens we used as follows:

	R. communis.	*R. sanguineus*	*R. Zanzibariensis.*
Husk	30 per cent.	25 per cent.	21 per cent.
Seed	70 „	75 „	79 „

In spite of the well-known dangerous character of the castor oil seeds they are not uncommonly encountered in horse mixtures and in cakes. A cotton cake shown to me recently by Sir John M'Fadyean had with it about 7 per cent. of whole castor seeds, and in the broken material we were also able to find at least 1 per cent. of fragments of husk and endosperm.

Although recorded cases in the veterinary literature are very few, cases of castor seed poisoning may, and do, occur from time to time. Their incidence is not necessarily confined to the cattle practice of the country, but the horse in towns may also be the victim through adulteration of foods. The pressed cake left after the expression of castor oil is, by reason of its ricine content, quite unsuitable as a food, although the usual chemical analysis, which merely displays the percentages of fat, proteins, carbohydrates, etc., would tend to indicate an excellent standard of dietetic value.

Properties of Ricine. The toxine *ricine* occurs in the endosperm and embryo, but not in the husk of the seed. The decorticated and air-dried seeds give 2·8 per cent. of a ricine preparation by extraction with 10 per cent. salt solution, precipitation by magnesium sulphate, and removal of the salts by dialysis. This preparation is not pure ricine, and no doubt contains a large proportion of albumins.

The active principle is not digested by trypsin. After tryptic digestion the quantity of precipitable albumen becomes almost negligible, although the toxicity is quantitatively preserved. The chemical nature of ricine thus appears to be analagous to that usually ascribed at the present time to the bacterial toxines and ferments, and the name toxalbumen is abandoned. Ricine differs in a marked manner from the bacterial toxines and snake venoms by its relative stability towards the natural fluids and ferments of the alimentary tract. For this reason it is absorbed from the intact alimentary tract, and thus may act as a poison when administered by the mouth. Nevertheless, the toxicity by this channel is at least a hundredfold less than the toxicity when administered by subcutaneous injection.

The toxicity by injection is enormous. According to Ehrlich 1-2000th of a grain per 2lb. body weight; 1 gram (15·43 grains) subcutaneously kills 1½ million guinea-pigs; 3 grains by the mouth is stated to be poisonous to the grown man, and it must be remembered that these figures do not refer to pure ricine but to ricine contaminated with more or less of albumen. Ricine is comparatively thermo-stable, it withstands a dry heat of 110° C., is not destroyed at a moist heat of 50° C., but is so at a moist heat of 100° C.

Symptoms of Poisoning. After injection the first symptom is a rise in temperature and a rapid fall in body weight. The decrease in weight is greater, and about twice as much as that caused by starvation. There are bloody motions, and albumen, and sometimes also blood in the urine. After 24 to 30 hours fatal symptoms suddenly declare themselves, beginning with clonic convulsions, spasmodic movements, weakening of the reflexes, and paralysis; after 15 minutes the convulsions are repeated, and half-an-hour after the onset of fatal symptoms there are dyspnœa and laboured inspirations, and death supervenes. Sometimes the spasms are absent. At the end there are severe central disturbances of the *medulla oblongata*, vaso-motor and respiratory paralysis. The blood pressure sinks. On post-mortem examination there is observed swelling and reddening of the subcutaneous lymph sacs. Great enlargement and reddening of the mesenteric lymph sacs and Peyer's patches, numerous ecchymoses in the intestine, but no ulceration, the spleen greatly enlarged and soft; thromboses are not found. The intestinal ecchymosis is considered to be due to the entrance of ricine from the circulation into the alimentary canal.

These observations, however, have very little value outside the laboratory being observed after injection, for the case likely to arise in practice is that of poisoning by way of the alimentary canal.

The Horse. The horse is very susceptible to poisoning by castor seeds. According to Miessner 450 to 750 grains weight of the seeds, or on the average 600, will fatally poison a horse. Allowing a ricine content of 2·8 per cent. this is equivalent to a dose by the mouth of only 16·8 grains, and again it must be remarked that by far the larger portion of this 2·8 per cent. is not ricine. The actual number of seeds naturally varies with their size.

In the English literature I have only succeeded in finding one case, viz., that published by Broad in *The Veterinary Record* of 1896, p. 226. Broad observed complete loss of appetite, shivering, coldness of the extremities, dejection, abdominal pain, and constipation.

Temperature 103° F. pulse 70. death took place in about three days. One is rather struck by the constipation, as the seeds were presumably not defatted.

In June of last year, Mr. R. Shenton, of Tideswell, sent me a sample of Indian corn, the use of which was supposed to have produced symptoms of poisoning in eight horses. These symptoms were, in Mr. Shenton's own words, "extreme dullness, with well-marked prostration, the eye looking especially dull. Pulse 60-80, temperature ranging from 102° to 104°. Constipation was present in all cases except one, in which there was diarrhœa, and this case rapidly recovered. There was total loss of appetite, and spasm of the diaphragm was a well-marked symptom. In only one case was there marked abdominal pain evinced by the ordinary signs. These symptoms gradually passed off after the administration of laxatives in two to five days."

On investigating the food I found a considerable proportion of broken castor seeds in it, and it was particularly pleasing to observe the excellent general agreement between the symptoms noted in Broad's and Shenton's cases.

Croton Poisoning of Horses.

The present occasion seems a good one for putting on record an interesting case of the poisoning of horses by croton. The cases were observed by Messrs. R. E. Godbold, of Sudbury, and Morton Wallis, of Halstead, and I am indebted to my colleague, Prof. Reynolds, for the details.

Croton seeds had been passed through a mill, which was then used for grinding rations for pigs and horses. About 300 pigs had the food, all vomited, and were severely purged, but none died.

Nine horses had the food, as it came from the mill, so that the quantity of croton taken decreased from the first horse onwards.

Symptoms. The pulse was hard, wiry, and quick; breathing accelerated; sweating, pawing, and crouching; constant and very violent purgation; temperature ranged from 103°—105° F. Three grains morphine sulphate in saline, or an equivalent quantity of tincture of opium in drenches of mucilage, corn flour, or arrowroot every few four hours was advised.

Recovery took place in about a fortnight in all cases save one. Unfortunately the carcase in the fatal case was removed before a post-mortem could be made.

The drastic irritant effects of croton oil constitute an important difference between these cases and those of ricine poisoning.

The Ox. Miessner gives the toxic dose of castor seeds for the ox as from 11 to 12½ ounces, that is about 10 times as large a dose as for the horse. This is an interesting illustration in the variation of susceptibility of different genera. The difference is very great and reminds one of the opposite difference in susceptibility to lead, towards which the horse is believed to be ten times as tolerant as the ox.

Mr. J. T. Edwards, M.R.C.V.S., B.SC., and myself have been experimenting lately on the effects of castor seeds on the ox, and some of our results are interesting. So far as concerns fatal poisoning, our earlier experiments with the ordinary small seeds to which I referred above were not productive of positive results. I shall, therefore, briefly summarise them without giving the full clinical records in detail.

The subjects were young calves, numbers I. and II., weighing respectively 3 cwt. 40 lbs., and 4 cwt. 70 lbs. One ounce of seeds was eaten with bran by calf No. I., and caused no rise of temperature, no malaise, or loss of appetite, but pale fluid and fœtid diarrhœa, which passed off in three days. When offered further quantities of seeds mixed in ordinary food this animal, like all our others, absolutely refused to eat them. The later doses were given either as drenches or in ball. Three ounces of seeds caused the same phenomena as the first dose of one ounce.

We then gave successively 4½ and 6 ounces of defatted seeds These doses did not elevate the temperature to any noticeable extent, and caused the fæces to become hard and dark, becoming normal in two or three days. Otherwise no abnormality was observed.

Thinking that possibly our subject had acquired a measure of immunity, we then offered calf No. II. 12½ ounces of whole seeds mixed with bran, which he ate, and four days later 18 ounces of pressed seeds in ball. The highest temperature noted was 102·8° F., and for the rest the whole seeds caused diarrhœa, whilst the pressed seeds tended to make the fæces hard and dark.

Serum was taken from each calf after the observations were ended and tested for anti-ricine by the precipitin test with ricine. No positive evidence of anti-ricine was obtained.

We turned our attention in the next instance to seeds of two varieties cultivated as ornamental plants, viz., *R. sanguineus* and *R. Zanzibariensis.*

We gave single large doses of each of them to two fresh calves of about the same weight, namely, 2¾ to 3 cwt.

Calf III. had 14 ounces of *R. sanguineus*, and calf IV. had 16 ounces of *R. Zanzibariensis* in ball.

Calf III. died in eight days, and calf IV. in 3½ days.

R. sanguineus. On the morning of the *first day after dosing* calf III. was weak, temperature 106.5°, turbid serous lachrymation from both eyes, and mucopus about the size of a barley grain under each eye, mucous discharge from nostrils, fluid diarrhœa, straining, but not passing much.

Second day: Temperature 104°, mucous discharge at nostrils, stertorous breathing, watery diarrhœa.

Third day: Temperature 104°, very marked stertorous breathing, watery discharge from eyes, and mucous discharge from nose, pulse feeble. Food and drink were refused, although the animal was not very dejected in appearance, and was still able to walk fairly easily.

Fourth day: The symptoms were much the same, but the breathing was easier.

Fifth day: Temperature 102·8°, marked stertor with each inspiration, which was very deep, strings of mucus hanging from nose and mouth, lungs apparently normal, pulse fast and weak, emaciated, abdomen tucked up and back arched, but still standing, semi-solid fæces passed continually.

Sixth day: Seemed to be improved, temperature 103·7°, breathing almost quiet, pulse 108 (weak), still tucked up and back arched, straining but passing no fæces. The animal began to pick up hay and to drink. Later on the same morning distressing symptoms of coughing, with discharge of greenish stringy matter from the nose ensued, but at night there was no discharge and few coughing fits.

Seventh day: Temperature 103·2°, pulse almost imperceptible, 108 and weak, standing with head and neck outstretched and haggard look, deep gurgling cough with greenish, frothy, mucous discharge from nose and mouth, attempted defecation, but intestines empty.

Eighth day: Found dead.

The *post-mortem* examination which was made at once showed no gross abnormality; the lungs, heart, liver, kidneys, and spleen being normal. The four stomachs were full of food (hay). The fourth stomach showed at the pyloric end some congestion, being bright red gradually fading. The congestion extended for about two feet into the duodenum and ileum. No evidence of inflammation could be seen in any other part of the alimentary tract, and the intestinal contents were normal. The trachea and bronchi were full of froth.

R. Zanzibariensis. Calf IV. was dosed in the morning. At 8.30 p.m. of the same day temperature 101·4°

lying down, outstretched, and marked tympanites; got up but showed no distressing symptoms, pulse fast and almost imperceptible, breathing fairly regular, watery discharge from both eyes, marked diarrhœa.

The subsequent daily temperatures were 98·8, 99·4, and 101·6°.

On the third day after dosage we asked Professor Reynolds to be so kind as to examine the calf as an independent outside observer, and he reported as follows:—Temperature 101·6°, pulse imperceptible at jaw, tail, or fetlock. Very dull, dejected, head held on ground, emaciated, tucked up abdomen, champing of jaws, extremities cold, no abnormality of pupil of eye, marked fibrilliary muscular twitching chiefly on shoulder and thigh; no special amount of scouring. *Prognosis* most unfavourable.

The animal died on the same afternoon.

The only abnormality observed on post-mortem was a rose-pink to dark red congestion, probably in excess of the static congestion, of the latter half of the intestinal mucous membrane, the contents of intestine and cæcum being viscid and yellowish red.

No fragments of husk could be seen in the ingesta. An attempt was made to recover ricine from the omasum contents by extraction with glycerine, but tests of the extract with anti-ricine serum were negative.

Our observations clearly show that the irritant effects of castor seeds are trifling in comparison with the general toxic effect.

The differences which we have observed in the effects of the various seeds with which we experimented are very puzzling. All the seeds contained ricine, as shown by the agglutination and precipitin tests. These tests are so delicate that they do not ordinarily serve to estimate the relative proportions. When occasion permits we intend to quantitatively compare the ricine content of the varieties in question. The small seeds contain a larger proportion of husk, which naturally tends to increase the dose, but this explanation is inadequate, for we gave equal or larger doses allowing for this factor, and moreover several times used defatted seeds in which the toxine is in greater concentration.

Our experiments at any rate tend to prove that the small variety is less toxic than the larger. I am informed that the small seeds are preferred for oil pressing, as giving an oil less liable to be drastic than that derived from larger sorts. It will be interesting to quantitatively standardise our specimens, as if it is found that the small variety has a lesser ricine content, that would explain the milder character of the oil. I believe the purgative effects of the oil to be due to the presence of infinitesimal traces of ricine. This opinion is supported by a recent statement made to me, but still requiring verification, that steaming the oil deprives it of purgative effect. This it would do by destroying any ricine possibly present.

Detection of Ricine.

The protein-like toxines and ferments do not possess characteristic chemical reactions. The only chance of certainly identifying them is by means of their specific physiological effects. Of course, if a cake or mixture contains whole seeds, there is no difficulty. If husks are seen the case is suspicious, but the husks are not poisonous, and it is therefore necessary to find and identify fragments of endosperm, and further also to show that the ricine has not been destroyed, *e.g.*, by steam heating.

The agglutination test. Besides the toxophore ricine also possesess an agglutinophore group. Ricine extracts agglutinate blood corpuscles more or less rapidly according to purity and concentration. With pure ricine extracts and washed corpuscles the agglutination is shown in a dilution of 1 : 600,000. The agglutination is not dependent on the hæmoglobin for it is shown also by the stroma or "ghosts." If blood corpuscles are disintegrated by distilled water, centrifuged, and suspended in saline, ricine extracts agglutinate the turbid suspension of "ghosts." Unfortunately the agglutination is inhibited by the presence of much protein. Nevertheless it is possible to observe it in 10 per cent. defatted castor seed to 90 per cent. linseed meal mixture. It is merely sufficient to extract at the incubator temperature with saline, and add the filtered extract to the blood corpuscle suspension. By grinding a fragment of pure castor seed for a few moments with saline and filtering, intense agglutination can be rapidly obtained with this extract.

In my experience the agglutinative power of croton and jatropha is greatly inferior.

The precipitin test. Not the least interesting property of ricine is the production of immunity. Beginning with dosage in very small quantities by the mouth, and proceeding to increasing injections, Erlich showed that in about four months a 4 to 8 hundredfold immunity can be produced. The case is specially interesting as the earliest investigation on immunity by Ehrlich. In general ricine immunity and anti-ricine serum show close parallelism to anti-diphtherine and anti-tetanin.

Anti-ricine serum gives a specific precipitin reaction with ricine extracts. It does not react with crotine, and is absolutely diagnostic. Anti-ricine serum is now made by Merck, of Darmstadt, and is purchasable. It should be as fresh as possible, should be kept in the dark in the ice chest, and should be filtered before use. When a 1 : 50,000 solution of ricine in normal saline solution is caused to form a layer in a test tube, on an equal bulk of serum, a sharp zone of precipitate is found at the area of junction of the liquids within ten minutes, and a 1 : 70,000 extract causes a distinct reaction in 20 minutes. The German authorities (Miessner, Mooser, Kranich; (see Kranich, *Zeitschrift für Veterinärkunde*, 1912, 455) extract 2 grams of the ricine containing material with glycerine (40 c.c.) at 50° C., filter, precipitate with 350 c.c. of a mixture of equal parts of alcohol and ether, collect and air dry the precipitate, and extract it with 10 per cent. saline.

I have found that direct extraction during 12 hours with physiological saline (0·9 per cent.) is satisfactory down to at least 1 per cent. of defatted castor to 99 per cent. linseed meal. In performing the test one should make parallel blank tests (*a*) with linseed, or other meal extract, and (*b*) with the ricine extract and a normal serum.

Discussion.

Mr. G. Upton opened the discussion, pointing to the various influences which tended to the production of cheaper, and therefore inferior foods by means of adulteration. This was particularly the case with horse mixture. He would go so far as to say that in the big factories, where crushing was done, not a husk was discarded. With regard to the poisoning by beans or seeds (cascara, castor, etc.), this arose from the cakes which were sent over for consumption by animals. A law case was at present pending on the subject. The sender of the seeds disclaimed responsibility. Sometimes, in the hold of ship, cake bags and bags having poisonous seeds, such as croton or castor oil seeds, were broken loose, but the whole contents, were sent to the mill to be crushed, and trouble ensued. The chemists invariably urged that they were not liable; that they bought the cake in bags, and delivered it in bags, and had no responsibility for the contents. The speaker then narrated a case in which he had been sent for to deal with a large number of cows which were dying. The owner explained that they had been feeding on cake, of the quality of which he was himself suspicious, as the bags had been broken to pieces, and he could not be certain as to what they contained. The cows had been fed at

3 o'clock, and the speaker arrived at about 9 o'clock. He found the cows throwing off large quantities of blood by way of the bowels, and enquiry elicited the fact that they had had nothing else to eat but the cake. The conjecture that castor beans produced hæmorrhage and diarrhœa was supported by medical evidence and statements found in books. One of the cows had died, as he had been unable to keep her from straining. Her temperature was high, and the breathing such that he suspected pleurisy. On the Sunday the cow died, and, upon opening her, he found that every part of the bowels, every vein was engorged with blood, and the peritoneum full of blood serum ; the pleura and pericardium were covered in the same way. He had known of several of these cases, and sometimes the milk contained blood.

Mr. R. BENNETT desired to know whether Mr. Upton had examined the blood in the fatal case he had mentioned, and whether he had satisfied himself that it was not a case of anthrax. Some cross discussion took place, and it appeared that Mr. Upton had not made any examination of the blood itself.

Mr. J. B. BUXTON referred to the question of immunity. Dr. Lander has remarked that it took some length of time to produce an anti-ricine. The speaker suggested that if a start was at once made with a mixture of toxin and anti-toxin, or ricine or anti-ricine, the period required for immunisation would be much curtailed. He had been struck by the lack of symptoms which had been shown as a whole by the animals with which Dr. Lander had experimented. There did not appear to be so much alimentary disturbance when the animal was poisoned by ricine per os as when the toxin was administered by subcutaneous injection. Subcutaneous injection, according to the speaker's experience, produced greater intestinal trouble characterised by blood extravasations in the intestinal wall, marked enteritis, enlargement of the spleen, and enlargement of the mesenteric lymphatic glands, accompanied by hæmorrhages in the gland substance. He suggested that the acute enteritis referred to by Mr. Upton was probably due to the husk as much as the seed, and apparently the husk did not contain ricine. With regard to the precipitation reaction, he would ask Dr. Lander whether he had ever compared the serum of animals that had been poisoned by month with those poisoned by subcutaneous injection, and, if so, whether he found any variation ; whether a better precipitation was obtained in the case of an animal poisoned by subcutaneous injection of ricine than in the case of one poisoned per os. Again, whether the serum of an animal dead a short time, after poisoning per os, gave a better precipitation than that from one in which the poisoning had been more chronic. Such had been the speaker's experience, although such a result would not have been expected. With regard to the agglutination reaction, apparently an appreciable amount of ricine was left in the circulation, and it was frequently possible to get a nice agglutination test by using the washed red cells of some other animal, and putting up three tubes—one containing a saline suspension of washed red cells to which a certain quantity of ricine had been added ; another containing a suspension of red cells only ; and a third containing a suspension of red cells, to which was to be added a fairly large quantity of serum from the poisoned animal. In the case of the first there would be a marked clumping of the red cells which would sink, leaving a clear supranatant fluid. In the second a mere sedimentation ; and in the third a number of minute clumps varying in size and number according to the quantity or potency of the serum employed.

Mr. TOOPE mentioned a case of castor poisoning in pigs, due to the grinding of the bean with a common grade of barley. The pigs received the meal early in the morning, and at noon when he visited the stye he found five pigs dead. He first thought he had to deal with anthrax ; there was much diarrhœa, mixed with large quantities of blood. He microscopically examined the blood; there was no evidence of anthrax. The husk of the castor bean was present in the stomach in abundance. All the pigs that recovered took a week or ten days in doing so, some never recovered properly.

In looking up some notes I made on this case at the time I find the following facts noted :

"The five pigs that died had received a large quantity of the meal, which had been previously soaked all night in boiling water, they were being fattened and had been given about four times the quantity that the other eleven had. This accounted for the rapid death. They were fed at 5.30 a.m. and were dead at 12.45 p.m. that day.

Post-mortem showed indications of gastro-enteritis with considerable apoplexy of the posterior bowel, and rupture of the mucous membrane in several places. Skin discoloured from recent extravasations beneath it, etc. Vascular system generally empty or nearly so. Damages against the dealer were claimed and paid."

In another case, in which young animals had been fed with ground cake in the form of meal, there was no diarrhœa ; on the contrary, there was obstinate constipation, which, however, might not have been entirely due to the castor bean, although the husks were present in abundance on micro examination. In this case the husks alone remained and had been used as a make weight probably.

Mr. H. A. MACCORMACK enquired in what part of the bean the active principle was found, Dr. Lander replied that there was no active principle in the husk. Continuing, the speaker referred to two cases of castor poisoning, one being fatal. The fatal case was that of a black and tan terrier. When he saw the dog it was violently sick, and purging was excessive, with a certain amount of blood. He could not diagnose the malady, but administered stimulants, the dog died during the night. He was unable to make a post-mortem. On subsequently questioning the son of the owner, it transpired that the dog had been playing with castor seeds and had been allowed to eat one, but only one. Apparently, therefore, one *ricinus communis* had been sufficient to kill.

Another case happened some years ago. A seedsman's foreman had found castor seeds in the refuse of some seeds he had been cleaning. He understood them to be poisonous, but not exactly how poisonous, and gave them to two young fellows who cracked the seeds, and each ate a couple of the kernels, which, he would remark, were of a pleasant, nutty flavour. The youths were next morning exceedingly "limp" ; they had been unable to go to bed owing to sickness and purging. The speaker considered that the bloody discharge referred to by Mr. Toope and Mr. Upton was, he thought mainly due to the husks, which injured the mucous surface of the intestines. The husks were hard and flinty, and the injury produced when an animal swallowed them was quite comprehensible.

Mr. W. R. DAVIS referred to a case of a corn merchant who, being desirous of grinding castor seeds to mix with forage for horses, had consulted a medical man, by whom he had been informed that the seeds were quite harmless. In all innocence, the merchant ground the seeds and mixed them with the forage, and, in the result the corn merchant had to pay £300 to the purchaser of the forage for the loss of several horses. (Case reported in *The Veterinary Record*). The speaker would ask Dr. Lander if it were not a fact that many authorities held the castor seed to be non poisonous. He recalled an account of experiments by a German (he believed named Baumgarten) who failed to poison animals by giving them castor seeds The corn cockle seed also was said to be poisonous by some, and by

others held as harmless. He scarcely agreed with Mr. MacCormack's opinion that the rough surface of the castor seed husk caused discharge of blood. So great a discharge as referred to by Mr. Toope and Mr. Upton could scarcely have been caused by the sharp particles of the husk. As a boy he remembered that gorse or furze was ground and given with meal to horses. He believed the bleeding was not due to mechanical agents in the bowel, but to action of the poison on the arterioles and capillaries, with consequent rupture of the capillaries of the mucous membrane of the intestines.

The PRESIDENT remarked that Dr. Lander's paper would have the effect of eliminating, in the future, any indifference as to castor seeds. He was surprised at the amount of poisoning which Dr. Lander had obtained from the administration of ricine by the mouth; and he would suggest secondary considerations such as worms or other causes producing injuries in the alimentary tract, increasing the facility with which the mucous membrane would absorb poisons. Mr. Buxton had pointed out that hypodermic injection of ricine produced enteritis. If that were so, it would seem certain that ricine had a specific action on the intestines, and hæmorrhagic enteritis might be produced without the additional local irritation of the seeds, which had been suggested as the primary cause of the hæmorrhage.

With regard to the statement that the husk did not contain ricine, the point had been established recently, and was contrary to earlier belief. It was interesting to know that in seeds where the husk was in the largest proportion the toxic effect was least. It was also interesting to note that the seed with the most brilliant hue, the *ricinus Zanzibariensis*, was the most toxic, although there might be no real association between the facts. On the question of treatment, drastic purgatives, such as pilocarpine or eserine would certainly clear the alimentary tract. But it had to be borne in mind that ricine produced great depression, and this depression was increased by drastic purgatives, so it should not be applied in general practice without previous experiment. In cases of suspected ricine poisoning a great depressant, such as eserine, might kill the patient. He would like to ask Dr. Lander whether, in his experience, he had found that red colouring said to be blood was not blood but was hæmoglobin. As the effusions were sometimes reddish-tinged, and the milk also, he wondered if ricine was capable of producing hæmolysis.

REPLY.

Dr. LANDER said the salient point seemed to be whether seed poisoning produced bloody purgation or not. He could only say that the "experimental" animals displayed no bloody purgation. After injection, however, the symptoms were, as Mr. Buxton had pointed out, more marked, and the lesions greater, than when the ricine was administered per os. In fact, Mr. Buxton had struck one of the remarkable features of the results of the experiments, namely, the great paucity of symptoms and lesions. The bloody purgation question was one that merited the attention of clinicists and pathologists. Speaking as a layman, he supposed it not impossible that there might be variation from species to species and animal to animal. He had been interested in learning the effects of castor seeds in the various cases mentioned. It was astonishing, in view of the various facts narrated, what a relatively enormous dose of ricine was required to produce serious disturbance in a cow. In regard to Professor Wooldridge's remarks on facilitation of absorption, the point was important. If the mucous membrane were not intact, the danger of castor seeds was undoubtedly greatly increased. He had been told that a rat which had received a dose of snake venom per os was afterwards punctured in the stomach by an instrument, with the result that death followed; otherwise the case need not have proved fatal. Such circumstances had, unquestionably, great influence in determining the actual toxicity. With regard to the ingenious suggestion put forward by Prof. Wooldridge as to colour, colour might certainly be a danger signal. So far as experience carried the matter, he was inclined to think the poisoning power was to be associated with the size, he believed it likely that the sky-blue castor oil seed, which was large, would be poisonous. The inference as to size was not, however, inherently probable As to hæmolysis, ricine was not a hæmolytic agent, but, be believed that with a powerful agglutination some expression of hæmoglobin from the densely packed corpuscles would take place.

In answer to Mr. Davis, he had certainly heard statements to the effect that ricine was not poisonous. He could not agree with the statements. In consideration of the fact that the true nature of ricine was not understood, it also appeared to him illogical to assert, as had been done, that "ricine" was not the toxic agent.

Mr. T. S. PRICE proposed, and Professor Reynolds seconded, a hearty vote of thanks to Dr. Lander for his interesting paper. The vote was passed by acclamation.

Mr. SLOCOCK proposed, and Mr. Samson seconded, a vote of thanks to those gentlemen who had brought forward morbid specimens. This also was passed with acclamation.

HUGH A. MACCORMACK, Hon. Sec.

SCOTTISH METROPOLITAN VETERINARY MEDICAL SOCIETY.

(NATIONAL V.M.A.—SCOTTISH BRANCH.)

The annual meeting was held in the Royal (Dick) Veterinary College, Edinburgh, on Saturday, 7th Feb., when the chair was occupied by the President, Mr. John Riddoch, M.R.C.V.S. Also present: Prof. Ainsworth Wilson; Messrs. John Cameron, Berwick-on-Tweed; D. McFarlane, Doune; P. Wilson, Lanark; A. Baird, Edinburgh; Andrew Boyd, Melrose; John Aitken, Dalkeith; J. Borthwick, Kirkliston; J. L. Cormack, Edinburgh; W. W. Peggie, Biggar; L. McLaren, Brechin; Robert Reid, Coupar Fife; John Storie, East Linton; Profs. A. Gofton and J. R. U. Dewar. Visitors: Messrs. G. C. Lancaster and J. Plunkett, students.

Apologies for absence were received from Messrs. James Peddie and A. Wallace.

The SECRETARY read the following letter:—

"Local Government Board, Edinburgh.
Feb. 6th, 1914.

Sir,—The Local Government Board have instructed their veterinary medical inspector, Dr. Gerald Leighton, to conduct a full enquiry into the question of establishing a uniform system and standard of meat inspection for Scotland, and to present a report thereon.

Should your Society be desirous of stating their views on this question, the Board will be glad if they will appoint one of their members for this purpose, or submit such views to the Board in writing.—I am, sir, your obedient servant,

(Signed) DAVID BROWN, Assist. Sec.

Mr. STORIE thought it was desirable that the Council should appoint one of their number to represent them at the enquiry. He moved that it be remitted to the Council with powers.

The SECRETARY said this was a matter of very great importance, and it might be advisable to receive a report from the Council,

Mr. MACFARLANE suggested that they should ascertain from Dr. Leighton more definitely the nature of the information required.

Mr. P. WILSON thought they should say that they desired a uniform system of meat inspection for Scotland, and would be pleased to consider any rules or regulations which the Local Government Board might draw up, and give them any assistance possible. They could not do anything until they knew what rules and regulations were proposed, unless they were asked to draw up these rules.

The SECRETARY said the Board wanted their views on the question.

Mr. P. WILSON said the Society had no objection to there being a uniform system of inspection, but if Dr. Leighton was to prepare a report they could do nothing till they knew what it would be.

The SECRETARY said that Dr. Leighton looked to the veterinary profession for data on which to draw up his report. They should meet him sympathetically and do something in the matter.

Mr. CAMERON said he objected to the word "Scotland." They had too much of the Home Rule business of making one law for Scotland and another one for England. What they wanted was a national system. They gloried in their united profession.

Prof. GOFTON said that this letter was of importance, and he hoped they would give the Council powers if need be to consult others outside the Society so as to make the evidence comprehensive.

Mr. STORIE thought it was unnecessary to consult outsiders.

The letter was then remitted to the Council with powers.

ADMISSION OF PRESS TO MEETINGS.

Mr. STORIE, speaking of a letter he had sent to the Secretary, said he thought it of importance that the newspaper press should be represented at their meetings for the benefit of the agricultural public. Anything purely private could be taken *in camera*. He thought it was extravagant to arrange for a special report as at present.

The SECRETARY said it was advisable to continue the present practice of depending upon their own reporter, as the newspaper press gave very brief reports, and reported only what suited themselves.

Prof. GOFTON said that, if desired by the members, the Secretary might be instructed to prepare a report of the proceedings to the public press, but many of their meetings were of no interest even to the agricultural public. The late Mr. Young, editor of the *North British Agriculturist* was a honorary member of this Society for a number of years, and although he received an invitation to every meeting during his (Prof. Gofton's) secretaryship, he could remember him being present at only one. He put it forward as a suggestion that when they had matters that could fairly be reported they might instruct the Secretary to send a report to the newspapers.

Mr. MACFARLANE said it was apparent that if they discontinued their present system of reporting they would be unable to publish a detailed account of the proceedings. It was, however, desirable that the agricultural papers should either be asked to send a representative to their meetings, or that the Secretary should furnish them with a report.

The SECRETARY said he could prepare a report for the Press if necessary, but all they had expended in this way during the year was £2 8s. 7d. It was absolutely necessary to have their own reporter, whether public Press reporters came or not.

The subject was then left over till next meeting.

New Member. Mr. Wm. W. PEGGIE, M.R.C.V.S., Biggar, having been duly proposed and seconded, was unanimously admitted a member of the Society.

The CHAIRMAN said it was suggested that those who propose new members should see that the men who were willing to join the Society should attend the meetings.

Mr. CAMERON said he did not know if he could agree with the condition that new members should pledge themselves to attend. In the case of many who were working single-handed it was sometimes impossible to put in a single attendance in the course of a year. He excused them for that, but he excused none in the profession for not being a member. Every man should be a member of some Association so that his influence might be felt when necessary. If he paid his subscription it was his own look out whether he attended or not.

The subject then dropped.

The HON. TREASURER then made his annual financial statement, and added that the thanks of the Society were due to Mr. Peter Wilson for his help at the Lanark meeting, and also to the College for housing them there.

Prof. GOFTON moved acceptance of the financial statement, which was seconded by Mr. Macfarlane and agreed to.

REPRESENTATIVES TO THE COUNCIL N.V.A.

On the motion of the Secretary, it was agreed to re-elect Prof. Bradley and Prof. Gofton as representatives to the Council of the National Association.

PRESIDENTIAL ADDRESS.

Mr. J. RIDDOCH, M.R.C.V.S., Edinburgh.

Gentlemen,—I thank you for the honour you have done me in electing me to the Presidential chair, but it is with some diffidence that I accept such a responsible position. I shall, however, do my best for the success of the Society during my term of office.

There is a series of articles appearing just now in *The Journal of Comparative Pathology and Therapeutics*, by Major-General F. Smith, which affords very interesting reading, and which describes the state of the veterinary profession in ancient Egypt—the birth-place of the sciences—and also in Greece, Rome, and other countries, and gives the history of the profession down to our own era, and the author says "It is a remarkable fact in the world's history that the medical and surgical treatment of animals has always been regarded as a contemptible occupation and beneath the dignity of the educated mind." I believe this was due to the fact that before veterinary colleges were established, and for a considerable time after, the treatment of animals was undertaken by ignorant empirics, who played largely on the gullibility of their clients. In the early history of veterinary science too in this country, men often joined the College late in life. The late Professor Baird once told us of one man who gained his diploma when he was over fifty years of age, and who exclaimed "What a start in life I have got!" It is quite different now; the men who are entering the profession to-day are young men of education and gentlemanly demeanour, and will compare favourably with those of the medical or any other profession. We even find medical men now competing for, and obtaining, veterinary appointments. We surely need some kind of trade unionism to protect our interests. The raising of the standing of matriculation and increasing the period of study has no doubt raised the status of the veterinary surgeon and given him a better position in the estimation of the public.

The veterinary surgeon of to-day has to be well up in all animal diseases, and in methods of treatment which

were unknown comparatively few years ago. Such terms as opsonins, anti-bodies, autogenous vaccines, complement fixation, were unknown when some of us were at College. The veterinary profession has progressed side by side with the medical profession. When the medical profession raises its standard of matriculation, the veterinary profession invariably follows suit. I am quite in favour of the veterinary student being equal in education to the medical. The general public have an idea that the doctor has a superior education to that of the veterinary surgeon. It would be well if we could disabuse their minds of that fallacy. The matriculation examination is exactly the same for both professions. Our's is rather the harder, as all the subjects have to be passed at one sitting. I understand that the medical profession are about to raise their standard of entrance examination, and I have no doubt the veterinary standard will be raised too. We cannot afford to stand still. Every science and profession is advancing, and we must advance with the times. As time goes on more and more will be required of the veterinary student. There is a proposal just now to institute a Public Health diploma similar to the D.P.H in human medicine, with an increased period of study.

Laboratory work is more and more in demand, and in order to obtain public appointments it is almost necessary to attend a post-graduate course in bacteriology and seropathy. The time may soon come for specialising in certain branches of our profession.

It is regrettable that our teaching schools should be in such a low condition financially, but there is a prospect of the Government assisting the teaching of our profession as they have assisted other branches of education. We need research laboratories connected with all our Colleges; there are still some obscure diseases and diseased conditions which need to be investigated.

The innovation of the motor car has no doubt hit some veterinary surgeons pretty hard. The prancing carriage horses—the best paying class of patients—are being replaced by the fast and luxuriant motor car. Motor traction is also largely coming into use for commercial purposes, and you will hear people say "there will soon be no use for veterinary surgeons." I do not believe, however, that horses will ever disappear from this country. Then there are other classes of patients. Diseases of cattle and sheep are receiving more attention to-day than ever they have before, and there is a large and ever-growing number of household pets to attend.

For those entering the profession there are some splendid colonial appointments. The position and status of the veterinary surgeon in the Army has been greatly improved of late years. The veterinary surgeons on the Board of Agriculture are likely to get their salaries increased and their status improved, as there is a considerable difficulty in getting men to fill the various posts, and when the Milk and Dairies Bill becomes law, as we hope it soon will, there will be a number of veterinary surgeons appointed throughout the country to carry out the Tuberculosis Order. It is almost a scandal that legislation on this subject has been so long delayed when so much tuberculous milk is being supplied to all our large towns.

The annual number of deaths of veterinary surgeons in this country during the last few years has greatly exceeded the number of young men entering the profession, so much so that there is a dearth of veterinary surgeons at the present time, and many practices are remaining vacant. Taking all these things into consideration, I think the prospects of the men entering the profession to-day are as bright and promising as ever they have been in the profession's history.

We hope to see the Tuberculosis Order considerably extended in the near future. The Board of Agriculture know what is wanted, but on account of the great opposition by local authorities and others who feared the expense, they had to make only a small beginning. The expense, however, will not be anything like what was anticipated. Sixty thousand pounds a year were set aside by the Treasury for their half of the compensation, and up to the 24th of January last, when over 4,600 animals had been dealt with, and the Order had been in operation for nearly nine months, only £4,500 were required, so that there will be a big surplus at the end of a year, perhaps somewhere about £50,000. Many animals that are not included in this Order are coughing up large quantities of expectorate containing tubercle bacilli, and spreading the disease broadcast. This is especially the case when animals are at grass. A tuberculous cow grazing in a grass field and coughing frequently tuberculous expectorate is literally sowing that field with tubercle bacilli.

A case of this kind came to my knowledge a few years ago. A tuberculous cow coughing up large quantities of expectorate, teeming with tubercle bacilli, was removed from one of our city byres, and was grazed a whole summer in a field near Edinburgh along with two colts. The cow was killed at the end of the season and the carcase was tuberculous throughout. About a year after the slaughter of this cow one of the colts had to be destroyed on account of tuberculous disease. That colt was not brought up on cow's milk, and I think there is good reason to assume that it was infected by its association with the tuberculous cow, which during the whole summer was polluting the grass by her expectorate, and perhaps also by her urine and fæces. One such cow in a grass field is capable of infecting a whole herd. Until all such animals are included under the Tuberculosis Order, there will be little headway made in eradicating the disease. Let us hope that in the near future this Order will be greatly extended so as to include all animals voiding tubercle bacilli in any manner whatever, and that a more liberal compensation will be allowed so as to induce dairymen and farmers to notify suspicious cases.

Mr. STORIE proposed a cordial vote of thanks to Mr. Riddoch for his interesting address.

Mr. CAMERON, in seconding, said that even the last point about the tuberculous cow was worth a great deal. —The motion was adopted.

"MAN AND MICROBE."

Mr. STORIE opened a discussion on the paper he had read at Lanark on the subject of "Man and Microbe." He said his chief idea in writing the paper was to bring the subject of bacteria before them in as plain and practical a manner as possible. Many looked on bacteria as something beyond them, and not quite in keeping with their other professional matters, but if they studied the subject they would find that bacteria were just like other organisms—he was almost inclined to say other animals, as perhaps they were more like animals than vegetables in their habits, but he must go according to the text books. They breathed. They should therefore apply the general laws of living organisms to them, especially those of evolution and heredity. One of the important items he mentioned was their economic value—their great value to the manufacturer in many articles. Then they must look on the control of them in regard to their food supply. They could not be fed in this country if it were not for arrangements made for preventing bacteria affecting the food imported into this country.

In regard to milk, bacteria was one of the most important subjects. The disclosures made by Dr. Stiles in his paper read before the British Association, since the Lanark meeting, had shown them the great importance of dealing with the tubercle bacilli in milk,

Some thought Pasteurising of milk spoiled its feeding qualities, although not damaging it to such an extent as to make it unsuitable for infants' food. With regard to toxins, Prof. Gofton at Lanark thought he was overstating the case, but he would read what Professor M'Fadyean said about toxins—"The pathogenic effects of bacteria are almost entirely ascribable to substances which, though elaborate, were manufactured. These were the so-called toxins." Another thing he (Mr. Storie) had mentioned was not taken much notice of in their profession, but more in the medical profession; he referred to the action of auxetics on phagocytes which were believed to destroy bacteria. That subject was being opened up just now, and was of intense interest. The M'Fadyean researches were well worth reading in regard to this subject. He had no experience of nuclein, but he believed it acted on the phagocytes. With regard to pathogenic bacteria, he would like to read a few lines he was afraid to read at Lanark—"Pathogenic or disease producing bacteria. Division into saprophytes and parasites—no hard and fast line can be drawn. Saprophytes may cause disease and may become parasitic under certain circumstances. All bacteria must have had a common origin. Evolution must have been at work amongst them just as in other living things of a higher order. Seeing that bacteria are so low, in fact the lowest known in the scale, and that since they multiply with such tremendous rapidity, they should be the most susceptible of all organisms. You can have a thousand successive generations in a fortnight—equivalent to a thousand years in the life of a wheat plant. What extraordinary variations could be produced in wheat in that time! Darwin believed in the slowness of the process of change in living things. *Natura non fecit saltum*, Nature does not leap, being a favourite saying of his, but we know that nature does leap. Bacteria must be particularly susceptible to changes of environment, a change in their food for instance; a chemical change in food and pasture might affect their own composition so thoroughly as to produce a pathogenic from a harmless form very rapidly. New types of a certain beetle have been produced in America quite suddenly by subjecting the creatures or their eggs to exceptional conditions of temperature and the like, and another experimenter has caused limitations in plants by injecting chemicals into the seed cups at the time of the formation of the seeds. Seeing this can occur in higher organisms, might not many of these sudden and obscure outbreaks of contagious disease be accounted for in this manner. Why should evolution not hold good now as it has done from the beginning."

The next thing he referred to was serums. It was really wonderful the extraordinary number of serums they could procure now as a means of treating disease. They had just to take up Parke, Davis & Company's list to see what a number of serums could be supplied, and he believed a great many of them had been successfully used. In regard to drugs, it was considered he was belittling their power too much. He repeated that they had been far too much used in the past, and that he thought they would be less used in the future. In regard to the treatment of bacterial disease, he did not think they had much effect.

Mr. CAMERON said this subject was both wide and important. He felt it was difficult to keep pace with the manufacturers of all these anti-toxins. It was comparatively easy for them to manufacture the anti-toxins and put them on sale, but sometimes after a big dose of medicine the disease reappeared. All these new anti-toxins cost a lot of money, and their clients were getting poorer. The result was that unless they could cure thoroughly every time at moderate expense they did not give much encouragement to go in for these high priced medicines. There were times, however, when it was their duty to place reliance on medicines, and to make certain that they had the right quality of drugs.

The SECRETARY said Mr. Storie should be thanked for his remarks. The bit he read to them which had been omitted from his paper was quite valuable, and quite the most original part of his paper. He was perfectly right in saying that less drugs were being used. In these bacterial diseases the best practice he thought was simply to get the animal into as normal condition as possible, to keep the natural passages open, and give fresh air and natural surroundings. In that way they would get better results than with any amount of medicine. But it would always be the function of the veterinary surgeon to prescribe what these conditions of treatment were, and his applied knowledge would always be an invaluable aid to the stockowner.

Prof. GOFTON said he would refer to the two points which Mr. Storie had taken up bearing on the remarks he (Prof. Gofton) made at Lanark. With regard to toxins he was really at one with Mr. Storie. He was not aware that he ever disputed that the majority of organisms operated by means of toxins, but it did not follow that all did, and that was the point of his remarks at Lanark. There was a possibility—more than a possibility in some cases—that the organisms operated by methods other than through toxins, but the general statement was true that the majority did operate through toxins. Drugs were being used less and less he agreed, but the principles of treating syphilis by salvarsan (606) opened up a new line of drug treatment, and the preparation of the drug was entirely on new principles. Apart from that, one must admit that drugs were frequently valuable accessories in treatment by serums and vaccines. While drugs in the past had been abused, there was still valuable scope for their use, and it might be that the future would show that methods were open to them in the use of drugs in treating disease that at present they had no notion of. He would not speak of the evolution of bacteria, because he did not feel he was in a position to say anything about it. One could quite conceive that evolution did take place very rapidly in bacteria, but the subject at the present time at all events, was in a considerable measure speculative. There were very few facts to which one could refer as definite evidence that evolution did take place, and he did not feel that at present he would like to express any opinion on that subject.

The CHAIRMAN said they were very much obliged to Mr. Storie for his paper which covered so much ground. It must have cost him a great amount of thought and reading up. There was no doubt that bacteria followed each other generation after generation in so rapid succession that there was ample opportunity for evolution—far more than in the higher life. It was suggested that some of them might arise spontaneously according to Prof. Schäfer. That opinion would not be universally accepted, but the subject deserved further investigation.

Mr. STORIE, in reply, said he was disappointed that more members had not taken part in the discussion, but the subject might be taken up on another occasion

A NATIONAL MILK AND DAIRY BILL.

Mr. JOHN CAMERON moved "That this meeting of the Scottish Metropolitan Veterinary Medical Society respectfully requests the Council of the National Veterinary Medical Association to take into their earliest possible consideration the subject of a National Milk and Dairy Bill, and we hope they will request every provincial veterinary Society to consider and formulate their ideas as to the appointment of veterinary inspectors to examine and report on all milch cows, whose milk is used for human food. Also all the various other points connected with veterinary procedure and inspection which should be stated in a Milk and Dairy Bill, which could be commended to give practical national

satisfaction. Having received these said provincial reports, that the Council of the National Veterinary Medical Association consider and formulate the same in accordance with the majority of opinion expressed; have it printed and for sale to all members of the veterinary profession." He said the veterinary portion of a Milk and Dairy Bill which would be practically satisfactory both in theory and practice was a subject which had engaged the earliest consideration of all Veterinary Societies, time after time. They had discussed it again at one of their meetings last year. It was a subject at the first, the last and other meetings of the National. Every milch cow should be brought under the procedure of the Bill. The need for a Bill on lines very different from anything which had previously been presented, was well illustrated recently in extracts from a paper by Dr. A Philp Mitchell, of the Royal Hospital for Sick Children, Edinburgh, which appeared in *The Scotsman*. The complete paper was well worth reading in *The British Medical Journal*, of January 17th, 1914. Those who were members, or had read the discussion at last year's National would observe that they made special allusion to the very dangers which Dr. A. Philp Mitchell had so practically demonstrated. They would observe that Dr. Mitchell did not discuss the recent Milk and Dairy Bills, but he pleaded for satisfactory veterinary inspection of all milch cows. A useful aid to their correct diagnosis of this subject was to remember that Edinburgh, Glasgow, Manchester, Sheffield and a few more of their large centres of population would wait no longer. They got private Milk and Dairy Bills for themselves, and thereby a greatly improved procedure had been carried out. But they complained of the bad results from the surrounding districts. He hoped the serious results which were brought to light and notice by the doctor's investigations at the Edinburgh Children's Hospital would stimulate the apathetic public to put their shoulder to the wheel and demand that urgent necessary things should be done first. What was worth doing was always worth doing well, and was always cheapest in the end. As many distinguished veterinary surgeons from all parts of the world would attend at the International Veterinary Congress in London this summer, he hoped this Society would do their part thoroughly, and thereby help to have a National Milk and Dairy Bill on the stage of which neither the veterinary nor medical professions would need to be ashamed. He moved that this meeting accept the said resolution and agree that it be forwarded to the Assistant Secretary of the National in the hope that the Council of the National would give it their early and sympathetic attention and support.

Prof. GOFTON said he had read this resolution carefully, and while in fullest sympathy with Mr. Cameron's motives, he did not feel at liberty to second. It seemed to him to lead nowhere. It asked the Council of the National to undertake an elaborate procedure which they would not be willing to undertake, and which was unnecessary, seeing that all their Societies were represented on the Council. It led nowhere, because after the Bill was drafted the Council were asked merely to print it and offer it for sale. After consultation with one or two members he had drafted an amendment which might be considered if Mr. Cameron was very anxious that steps be taken.

Mr. CAMERON said he was anxious something should be done to remove the stigma that would come upon them.

Mr. BOYD said that unless the fountain head was pure they could never expect good water. They must deal with the breeding herd if they wanted a pure dairy supply. No Bill would be of any use unless it contained a compulsory clause to test breeding herds.

Mr. STORIE said this was far too big a question to take up at such a late hour.

Prof. GOFTON said it was undoubtedly a question for a whole meeting. He suggested that the matter should be remitted to the Council to arrange for early discussion on the whole subject.

Mr. CAMERON said that the subject had been frequently discussed, and there was ample printed material to enable the Council of the National to indicate the mind of the profession. But they really wanted to see what should be put in a Bill.

It was then agreed to remit the matter to the Council.

THE TAX ON MOTORS.

Mr. REID suggested that efforts should be made to get a reduction of the tax on motors used by veterinary surgeons, as was done in the case of doctors.

The CHAIRMAN said that had been frequently tried.

Mr. REID said they should peg away till they got it.

SPECIMENS.

Professor AINSWORTH WILSON showed the following specimens:—

Case I. Navicular Disease. Subject, an Artillery draught mare, aged 8 years, which went very lame in both fore feet at camp in July, 1913, accompanied by a high temperature, and symptoms which pointed to laminitis. The mare was returned to light work in about six weeks, but she was never quite sound.

Early in January acute symptoms reappeared, and the animal was destroyed on the 21st. The hoofs and bones of the lower limbs were exhibited. The navicular bones alone showed evidence of disease in the form of a rarefying ostitis, the holes on the posterior tendinous surface being about the size of a pin's head and half a split pea respectively, and the interior of the bones being considerably hollowed out. He drew attention to the absence of any sign of ring formation or contraction of the hoof.

Case II. Navicular Disease. Subject, a cart horse, aged 10 years, fell very lame in one fore foot in 1912. He suffered considerable pain, could bear no weight on the limb, and the toe merely touched the ground. An extensive inflammatory swelling appeared round the heel and coronet. Fracture of the os pedis or acute ostitis was suspected. Two months later the horse was destroyed, having shown no improvement. The os pedis and os corona were the seat of new bony deposits, but the primary and essential lesion was evidently an extensive carious condition of the navicular bone.

It seemed to him worthy of note that both these cases occurred in heavy horses, in both the cartilage was removed, and the bone roughened without the perforans tendon being involved.

Case III. Deferred fracture of the Tibia. Subject, a three-year-old van gelding with the following history. Entered a large stable on Jan. 1st, 1914; kicked in the stall above and inside the hock on the 21st, the wound being trifling, and associated with little or no lameness; put to work on the 28th. At midday on Feb. 1st the groom who was watering the horse in the next stall heard the young horse slip and fall. When examined, a piece of bone was protruding through the skin on the outside of the leg, a hand span or more above the hock.

The specimen showed a very long oblique fracture. The practice in this stud had been to place horses so kicked in slings for about three week, but in this case precautionary measures were neglected.

It seemed very probable that a starred or deferred fracture without displacement had existed from the outset.

A fore foot of the same horse (exhibited) showed two small sidebones in process of development.

JAMES HENDERSON, Hon. Sec. & Treas.

DISEASES OF ANIMALS ACTS 1894 TO 1911, SUMMARY OF RETURNS.

Period.		Anthrax.		Foot-and-Mouth Disease.		Glanders.†		Parasitic Mange.		Sheep Scab.	Swine Fever.	
		Out-breaks (a)	Animals.	Out-breaks (a)	Animals.	Out-breaks (b)	Animals.	Out-breaks (b)	Animals.	(b)	Out-breaks (a)	Slaughtered. *
GT. BRITAIN. Week ended March 14		18	18			1	5	53	105	3	59	495
Corresponding week in	1913 ...	20	20				3	58	117	5	37	587
	1912 ...	18	18			3	6	81	148	5	69	621
	1911 ...	18	24		6	1	5			7	52	687
Total for 11 weeks, 1914		209	223	9	65	23	63	868	1660	122	609	5516
Corresponding period in	1913 ...	147	161			35	108	875	1884	97	374	4391
	1912 ...	280	309			36	82	1397	3258	134	657	8156
	1911 ...	230	264	1	18	46	176			270	401	4583

(a) Confirmed. (b) Reported by Local Authorities. † Counties affected, animals attacked: London 5.
Board of Agriculture and Fisheries, March 17, 1914

Disease in Certified Meat.

The Medical Officer of Health for the Port of London, in a report to the Corporation, mentions that certain pig carcases affected with tuberculosis were found among the meat which arrived recently from Flushing at Queenborough. They all bore the official certificate of the Netherlands Government as approved by the Local Government Board. One carcase, affected similarly, arrived from Ostend. It bore the Belgium Governn.ent certificate.

A consignment of Australian meat, consisting of 398 buttocks, proved to contain, to the extent of 12·3 per cent., "worm nests" (*onchocerca*). The meat bore the official certificate of the Australian Commonwealth.

Synthetic Milk.

Milk from Soya beans is not a new idea. Several years ago an attempt in this direction was made, but was negatived, for one reason, by the distinctive flavour. It is announced in the public press this week that this, and other difficulties have been overcome. It is stated that the fluid, as far as its appearance is concerned, is quite indistinguishable from rich cow's milk, is delightfully smooth on the palate, but to some persons the taste seems slightly different from that of ordinary milk.

Casein obtained from the soya bean is the basal constituent of the new milk. All oil and waste matter are removed and only the pure casein left; to this basis are added in exact proportions fatty acids, sugars, and salts, and the difficulty of producing a perfect emulsion has been completely overcome, the new fluid satisfying every test in this direction, even to the extent of refusing to "cream."

In order that the synthetic milk may approximate to the real milk, bacteria of the required strains, including the lactic acid bacilli, are introduced to the fluid and permitted to act until it reaches exactly that "maturity" at which fresh cow's milk is obtained. This condition is proved by the fact that excellent cheese and "butter" can be made from it.

The milk can be made up in any proportions desired, that is, with more or less casein, fat, sugar, or salts, and thus can be supplied to children and invalids according to a medical prescription. Finally, the new milk can be produced more cheaply than can ordinary milk.

"Who takes or uses."

The following case presents an unusual feature in such prosecutions:—

At Chelmsford on Friday, 13th inst., Gladstone Ward was summoned for using the title of dentist, not being registered under the Dentists' Act, 1878, and not being a legally qualified practitioner.

Mr. P. J. Ward said the prosecution was brought by the British Dental Association. Defendant started business in Chelmsford, at premises in Tindal Street, which were described as "The Anglo-American Dental Surgery," and on a plate outside the premises were the words "G. Ward. Teeth extractions." Last year defendant applied for membership of the Chelmsford Unionist and Conservative Working Men's Club, and for that purpose had to sign his name in a book, together with a declaration according to the rules of the Club. On September 15th defendant signed and described his occupation as "dentist." As apparently he had heard that some stir had been made, he applied to the Committee of the Club to alter his description. In the presence of the secretary defendant added the letters "ry" to the word "dentist." The witnesses in the case, Mr. Ward added, were all called against their will, and on subpœna of the High Court.

W. T. Brown, clerk to the solicitors to the B.D.A., produced the Dentists' Register and the Medical Register, in which, he said, the defendant's namedid not appear.

Mr. C. H. Aubrey, for the defence, said the Act only forbade the assumption of the description or name of dentist, but did not stop anyone from practising dentistry. The prosecution was brought about by the fact that there was another dental practitioner in the Club, and there was a little bit of feeling in the matter.

The Mayor (Alderman G. W. Taylor) said it was not a flagrant case, but at the same time dentists and the public must be protected. Defendant would be fined 40s., and costs £1 9s. 6d.—*East Anglian Daily Times.*

A joint sub-committee of the Market and Public Health Committees of Edinburgh Town Council have recommended the setting up of a separate veterinary department for the city under a duly qualified veterinary inspector, and transferring to the new department the veterinary inspectors at present in the Medical Officer of Health's department. It is considered that the proposed new department will attract more competent men to the service, and that there will be better chances of promotion for the officials.

PARLIAMENTARY.

Swine Fever and Serum Experiments.

In the House of Commons on Wednesday, March 18, in reply to a question :—

Mr. Runciman said : One experiment had been begun up to the present, and others are in contemplation ; over 100 swine have received injections of serum, and are now under observation. It is inadvisable at present to disclose the whereabouts of the premises where the experiment is being made, but the results will be published in due course.

The Royal Sanitary Institute.

A Sessional provincial meeting will be held on Friday March 27th, in the University, Birmingham, (Edmund St.), at 7.30 p.m., when a discussion will take place on "The Certification of Milk and its Effect on the General Milk Supply," opened by Wilfred Buckley, Esq., of Basingstoke. The chair will be taken at 7.30 p.m. by Louis C. Parkes, M.D., D.P.H.

Those proposing to attend and take part in the discussion, can obtain a copy of the paper to be read, on application to the Secretary of the Institute three days before the meeting.

E. White Wallis, *Secretary.*

90 Buckingham Palace Rd., S.W.

ARMY VETERINARY SERVICE.

Extract from *London Gazette.*

War Office, Whitehall, March 13.

Territorial Force. Army Veterinary Corps.

Lieut. R. Rawlins to be Capt. Dated July 1, 1913.
Lieut. W. G. Wragg to be Capt. Dated March 1.

Personal.

Lowe.—At Bangalore, India, on the 21st February, 1914, the wife of Capt. W. Cecil Lowe, A.V.C., of a daughter.

The following inventory was included in the list recorded in the Sheriff Court books of Argyllshire during February :— James Douglas, M.R.C.V.S., of Messrs Cook & Co., Ltd., Calcutta, and who resided at Erich Bank, Kirn, £39,680.

OBITUARY

A. Paton, M.R.C.V.S., Clarendon Rd., Leeds.
Graduated, Glas : July, 1888.

Mr. Paton died on March 13, from chronic nephritis. Aged 55 years.

The death is reported of Mr. Leonard Thompson, B.SC. M.R.C.V.S., of Retford, Notts., but no particulars are to hand. He graduated at London, July, 1909.

The late Mr. W. J. Watt, M.R.C.V.S.

The funeral of the late Mr. W. J. Watt and his wife took place at Norwood Cemetery on Thursday, 12th inst. There was a fairly large attendance at the cemetery, which included Messrs. H. Lomas, J. W. Brownless, and A. Dunbar, M.R.C.V.S., and many local and personal friends. There was a large number of floral tributes—from the children and relatives, and from firms and employees with whom Mr. Watt had been connected, and from personal friends.

Mr. Watt was born in Virginia, U.S.A. He came to Fulham Road in 1904, and later took over the practice of Mr. Sam Bignold, at Lillie Bridge, on his retirement. He had been in bed on the Tuesday, apparently with influenza, but was out again on Thursday, and died suddenly in the forenoon on Friday. His wife took his death very much to heart : serious nervous symptoms followed and death occurred on the Tuesday. They leave four children, two boys and two girls.

CORRESPONDENCE.

TRANSMISSIBILITY OF TUBERCULOSIS.

Dear Sir,

"Fools often walk where angels fear to tread," and I fear I may be one of the former in writing this letter. I cannot, however, allow Mr. Leeney's letter in your last issue to pass without notice.

In the early part of his letter he says "that it has never yet been *definitely* proved that any human being has been infected by the consumption of cow's milk." I think that this remark may apply equally to many other diseases which are accepted by all professional men as being infectious or contagious, and probably with less theoretical proof to support their belief.

Tabes mesenterica, I believe, is recognised as an infantile tuberculous condition of the bowels, and was believed to be caused by the using of cows milk, long and long before the bacillus tuberculosis had been recognised ; now, of course, it is an accepted fact except by a few.

Surely Mr. Leeney cannot suggest that experimental inoculation is the same as natural infection Does he know anything of the opsonic index theory? This, to my mind, proves conclusively that the conditions of the body are not always the same, and we have yet to learn which condition is most favourable to certain bacilli.

If tuberculosis *has been produced* by inoculation or feeding upon tuberculous material, it should be sufficient cause for legislation to prevent the use of tuberculous products for human consumption, or for that of lower animals, at least in a raw state.

I always court discussion, but strongly condemn a professional man who, like Mr Mond, endeavours to make a name with the lay public by undoing the strenuous labours of generations of scientists.

In my presidential address I made allusion to this matter, and an eminent medical bacteriologist present corrected me when I alluded to Mr. Mond as a medical man, he informed me, however, that he was the son of a chemist who made a heap of money.

I trust that Mr. Leeney will think twice before he rushes into print to defend a layman against his professional *confreres*.—Yours faithfully,

J. Chas. Coleman.

Swindon.

MOTOR TAXES : PETROL REBATE.

Sir,

Following Mr. Bindloss's example, I wrote to our M.P., Mr. Arnold Ward, *re* motor taxes and petrol rebate for veterinary surgeons, and have received promise of his help when the Finance Bill comes before Parliament. He asks for publications containing the previous history of the matter. Can you, or any of your readers, tell me where these can be obtained?—Yours faithfully,

A. C. Wilson, Capt. A.V.C., (Ret.)

Berkhamsted, March 19th.

Original articles and reports should be written on oneside of the paper only and authenticated by the names and addresses of writers, not necessarily for publication.

Communications for the Editors to be addressed
20 Fulham Road, London, S.W.